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CLEVELAND, O., FEBRUARY 2, 1928

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Number 5

IRON TRADE REVIEW

Cleveland, O.
Feb. 2, 1928

The Authority of Industry — National and International

Your Income Tax Return! How Recent Rulings Affect It

Important New Decisions May Suggest Ways for Saving Money — Examples Pertaining to Metal-Working Industries—New Revenue Act Discussed

By M. P. Snow

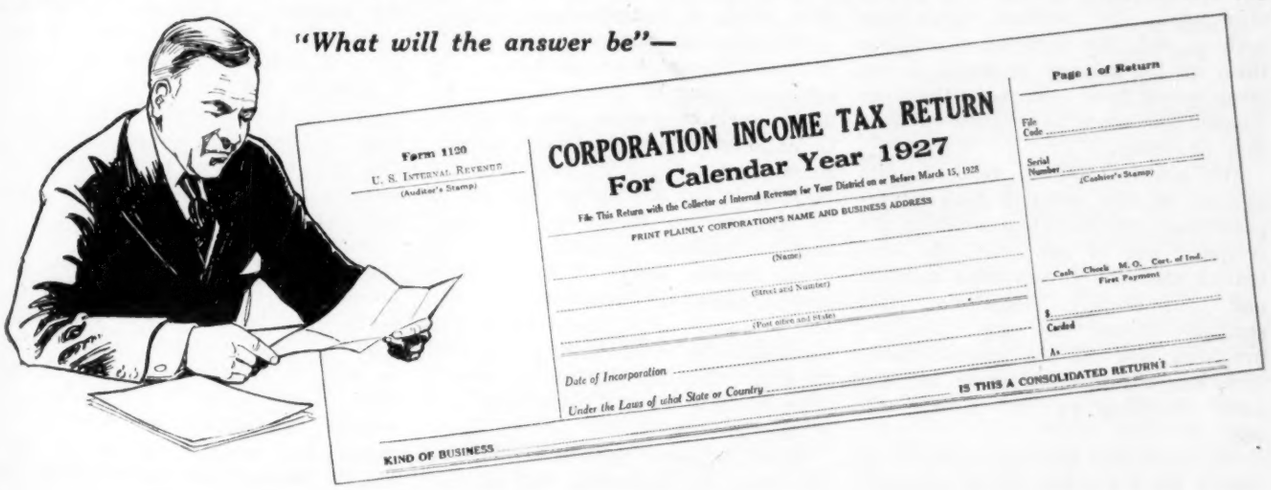
ONCE again Uncle Sam is calling for income tax returns, and manufacturers may be able to save considerable money if they understand some of the important decisions the government has made recently.

It seems that companies in the metalworking fields have peculiar problems. Their cases which have come before the United States board of tax appeals have had to do mainly with depreciation, repairs, replacements and similar points.

When taxpayers come to make up their reports for the calendar year 1927 it will be a good plan for them to bear in mind certain important rulings. There are a number of these in cases affecting metalworking companies, so it is quite possible that the reader may find the solution for his own problems in the opinions which have been handed down by the "tax court."

A manufacturer of cold-rolled steel in Pennsylvania took his tax matters before the board, with an interesting result. The case involved the question of money spent for what are called "capital assets."

The company had in 1919 purchased a screw-down for a 12-inch mill. This was to take the place of another which the company had removed during that year, to install the one of newer design. The old one had been in use about two and one-half years, and the new one was obtained in 1919. At the time of the decision some of the company's mills still were equipped with screw-downs similar to the type of the one which was re-


"What will the answer be"—
Form 1120
U. S. Internal Revenue
(Auditor's Stamp)
CORPORATION INCOME TAX RETURN
For Calendar Year 1927
File This Return with the Collector of Internal Revenue for Your District on or Before March 15, 1928
PRINT PLAINLY CORPORATION'S NAME AND BUSINESS ADDRESS
(Name)
(Street and Number)
(Post office and state)
Date of Incorporation
Under the Laws of what State or Country
IS THIS A CONSOLIDATED RETURN?
KIND OF BUSINESS
Page 1 of Return
File Code
Serial Number
(Cashier's Stamp)
Cash Check M. O. Cert. of Ind.
First Payment
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moved. The equipment was in use at the time the case came before the board. The company had made a deduction in its tax return for the new screwdowns, as an ordinary and necessary expense.

The board stated that it was convinced the expenditure for the equipment was in the nature of a replacement, that the asset acquired had a life of more than a year, and the expenditure represented a capital outlay.

In other words, the board held that it was not deductible in computing net taxable income for that year. The company did not bring up the question of the proper amount of deduction for the old screwdown. But there is no doubt it would have been allowed to deduct for any cost left in the old one, less any amount received as salvage or scrap value.

Your attention is called to the fact that if an asset lasts longer than a year it is in most cases not considered an expense but is set up on the books and depreciated so much each year, depending on its life. Of course, if an asset barely outlasts a year, the government is not likely to be so insistent about its being capitalized.

Another interesting point which came up in connection with this company's case was a deduction made by it for some discarded annealing covers. The company purchased these covers of inferior quality because it was unable at the time to buy the high grade covers desired. The purchased covers warped and let in oxygen which spoiled the annealing. This cut down the tonnage produced and added materially to the cost of operation. As soon as it was possible to get the better grade covers, the old ones were thrown out. They were taken out and abandoned not because of any exhaustion or wear and tear, but because they could not be profitably used. The residual value was nothing and the expense of cutting them up for salvage purposes or for scrap would have cost more than the amount that could be realized on their sale as scrap.

The board stated in rendering its opinion on this question that a preponderance of the evidence which the company put in supported the contention that the covers were actually and permanently abandoned and scrapped during the year. The depreciated cost of the plates, therefore, was a proper deduction for that year, according to the board's ruling.

The board has been generous in allowing for the deduction of discarded assets, permitting the taxpayer to take as a deduction on his tax return any unextinguished cost left in such items, less any salvage.

INCOME tax time arrives, taking more money out of the pockets of those who have watched profits dwindle in the past year. The only way to handle the problem is to pay no more than the government actually requires. This may sound absurd, but the fact is many taxpayers do not know all of the deductions to which they are entitled. The new revenue bill also is coming up for attention, and may affect the amount of tax payments. Important decisions have been made since last March affecting companies in the metal working industries. In view of the importance of the subject to many companies unable to engage experts to advise them, IRON TRADE REVIEW presents in this article some of the most vital features affecting the income tax situation as it pertains to them. The author of the article is associated with M. P. Snow & Co., public accountants and tax consultants, Chicago.

In the past year a number of cases have been ruled on by the board of tax appeals and by the tax administration of the government, involving depreciation. Companies in the metal-working field have been among those ruled on. The gist of the board's ruling can be summed up by the statement that the board permitted a "reasonable" deduction for depreciation.

Terminology Is Clear

There is nothing new about the term "reasonable" as this has been the test used by the taxpayer and the tax board right along. A reasonable rate for one company may not be reasonable for another company in the same field having the same kind of equipment,

One company may take better care of its equipment than another. The equipment may be subjected to harder use in some companies than in others. Climatic conditions are known to have some effect. About the best that can be done is for the person who makes up the return to make the most accurate estimate possible on the life of a certain asset. If it is plain that a piece of equipment will last for a longer or a lesser time than was originally contemplated, you may "re-life," that is, you make take a different rate on the remaining cost of the asset.

Other decisions have been made in the case of foundries, and similar companies in the iron trades. In several instances losses have been denied because as the board emphatically stated there was not sufficient evidence to show that the losses were really *bona fide* losses.

One company was denied deductions for salaries and bonuses. It was held that the company had not shown the salaries to be reasonable salaries, and the bonuses were ruled to be distribution of profits. The profitable thing to be learned from these rulings is the importance of putting in information and plenty of it to back up your deductions.

The writer has never seen a case where there was too much information submitted. It is almost always the other way. The taxpayer thinks that the government, the tax bureau, or the board of tax appeals, will allow his contentions without his having to go to much trouble to prove them. However, as the burden of proof is always on the taxpayer, it does not work out that way.

One of the most familiar statements to be seen in the board's decisions is the one starting with "Evidence insufficient to show." This does not refer simply to the quality of evidence submitted, but in many cases to the amount of it. The best thing to do, where you are showing an item on your return which you think may cause some question by the government, is to satisfy the government of its allowability right away by explaining it in detail. It is often much harder to explain to the government after it has questioned a certain item.

In preparing your income tax return always keep in mind the fact that a net loss sustained in 1927 can be taken forward and applied against the net income of 1928. Or, if you sustained a net loss in 1926, you can take that net loss and apply it against the net income for the year 1927. If there should not be enough net income in 1927 to absorb the loss of 1926 you may take any balance of the loss forward and apply it against the net income of 1928. Bear in mind, however, that if you have income from nontaxable securities you must first reduce your net loss by any such income before you can carry it forward.

If you have not filed your income tax report at the time you see this article, and the revenue bill has not yet become law, it is my suggestion that you wait a while before filing. In fact, if you have very much tax involved, the writer would recommend waiting as nearly as possible to March 15. As this article is written, it seems that the bill will be-

(*Continued on Page* 325)

Charging end of a continuous gas-fired furnace for annealing transmission gear blanks

Automatic Heating And Heat Treating Units Synchronize Auto Production

By J. B. Nealey

MASS production was made possible by automatic machines, but it was not until automatic heating and heat treating units were perfected that the many possibilities of the mechanical era were realized. Automatic gas furnaces, performing an almost unlimited range of heating processes are synchronized today into straight-line mechanical production.

The Fordson plant of the Ford Motor Co. exemplifies what can be accomplished in this line. The vast majority of the heating and heat-treating operations are on gas and approximately 50,000,000 cubic feet of this fuel is consumed every day. The gas is piped to a compressor room, raised to 15 pounds pressure, and delivered to the various parts of the plant where it is utilized.

Steelmaking is probably the first process in which gas is used. In this department are seven basic open-hearth furnaces, each 70 feet long and 22 feet wide and of 100 tons capacity. The checkers occupy the 25-foot space between the charging and ground floors. A gas burner with a 5-inch water-cooled nozzle fires directly above the hearth from either side.

Every 15 minutes one burner automatically is shut off and the other lighted, the waste heat being forced by the draft across the hearth and down through one of the regenerators, where it imparts much of its heat to the brick checkers, and then out through a waste-heat boiler and stack. Fresh air for combustion is drawn through the other regenerator and by the time it passes the burner nozzle and mingles with the gas, it is hot enough so as not to materially cool the hearth. It requires from six to seven hours to bring the temperature to 2900 or 3000 degrees Fahr. and the steel is ready for pouring in 11 to 13 hours.

Installation Is Large

The main heat-treating department, one of the largest in the world, includes 40 cyanide, 19 continuous and six periodic furnaces, as the principal installations, all fired with gas. The temperatures of these units are maintained with automatic pyrometric controls and the accuracy of these constantly checked in a central control room. In this room are located 66 recording pyrometers, on two wall boards, holding 33 each. These recording instruments are direct connected with couples in the various furnaces and ink out a line on the charts showing the fluctuations during operation. A variation of more than 3 degrees either way is not tolerated in the continuous and periodic furnaces although a somewhat larger swing is allowed for the cyanide units.

The heat-treating equipment, to simplify the description, can be divided into batteries and single units according to type and class of work. Annealing and normalizing is accomplished in a group of six continuous and automatic furnaces each 24 feet long, 8 feet wide and 6 feet high. They are built of brick and suitably insulated. Alloy steel rails are laid on the hearth and the work, consisting of gear blanks, cam shafts, steering arms, front wheel spindles, etc., is propelled through with a mechanical pusher that is motor-driven.

The author, J. B. Nealey, is identified with the American Gas association, New York.

This pusher is actuated by a cam, and a variable speed transmission controls the pusher impulses, so that the work remains in the furnace the exact heating period specified. The hearth extends 5 feet beyond the charging end to facilitate loading. Six burners are equipped with inspirators which automatically proportion the gas-air mixture for complete combustion and the proper furnace atmosphere. These burners are located in the first third of the furnace, three on each side, and close to the loading end.

In this heating zone, temperatures from 1500 to 1650 degrees Fahr. are maintained, and this drops gradually until it is only 1150 degrees at the discharge end. The heating periods vary, according to the class of work, from six to eight hours. Each of the units will heat 20,000 pounds of work in 24 hours.

Inspirators Are Employed

The hardening of such parts as the crank shafts, connecting rods, and caps, gears, etc., is accomplished in a battery of 12 continuous and automatic furnaces, six for hardening and the remainder for the draw. These units are of brick 18 feet long, 5 feet wide and 6 feet high and are underfired with three gas burners, located in the charging end, provided with inspirators.

The work, loaded onto plates, is pushed through on rails by a correctly timed mechanical pusher and automatically discharged into a water quench. This is contained in a steel tank, equipped with a flight conveyor which lifts the work up and out to an operator who loads it on the hearth of the drawing furnace. A covered chute into the tank forms a water seal to prevent cold air from entering the furnace at this point. The drawing furnaces are exactly like the hardening units, and the work is discharged into wheelbarrows and loaded into tumblers, ground, brinell tested and trucked to the machine shop.

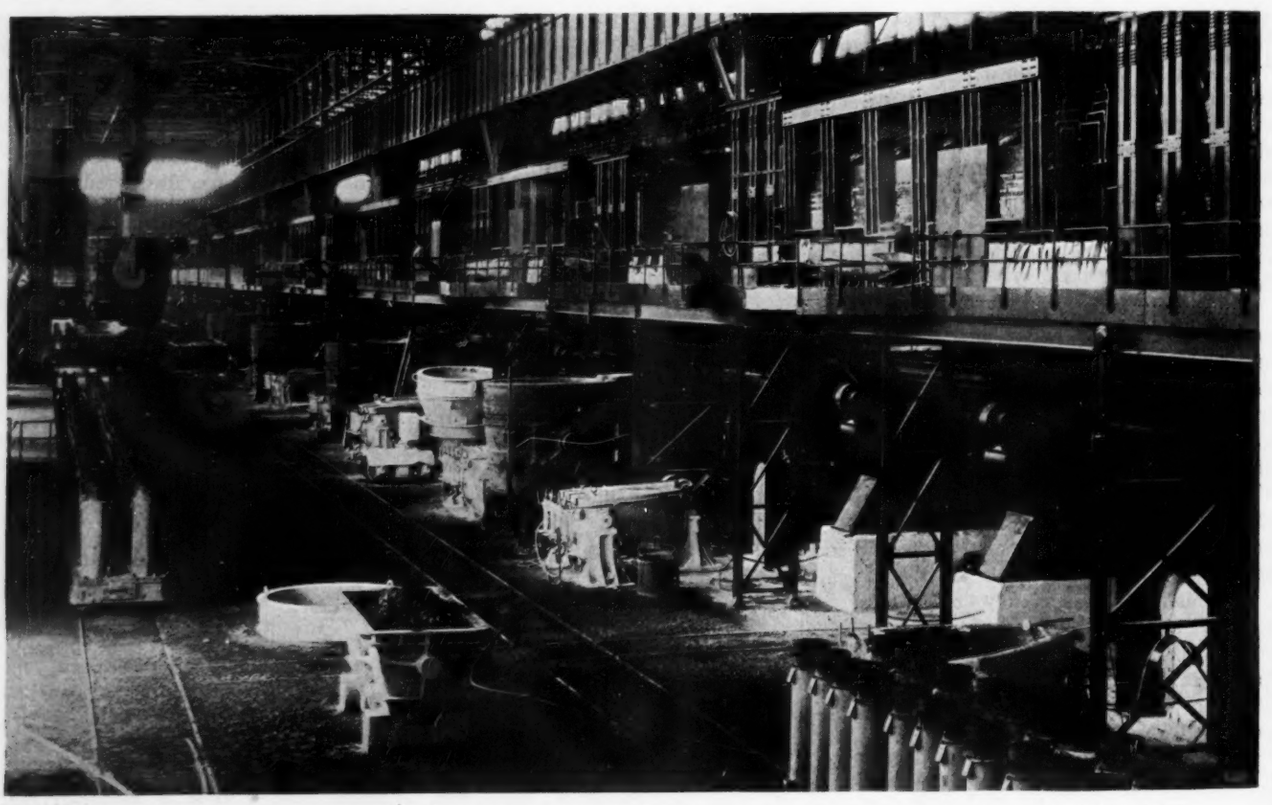
Temperatures within the hardening furnaces are maintained from 1470 to 1590 degrees Fahr. and within the drawing units from 600 to 1200 degrees Fahr., according to the class of work. The heating periods for each of these operations ranges from 45 to 75 minutes. As these units are in tandem the work passes through continuously, and, except for the charging after the quench, automatically.

The cam shaft is treated in a continuous furnace 14 feet long and 5 feet square, in cross-section. This unit is equipped with a mechanical pusher and is designed for side-door discharge. It has two burners and inspirators, located at the discharge end and the work rides through on rails laid on the hearth. The shafts, when up to heat, are removed by an operator with tongs and put into a quenching machine, designed to prevent warping. It consists of an upright cylindrical tank, containing three vertical bars with sets of rollers, which are clamped around the shafts to hold them straight while water is sprayed on them. There is no draw for this particular piece of work. The hardening furnace is heated to 1470 degrees Fahr. and the work remains in it 45 minutes. The output of this unit is 400 cam shafts in eight hours.

Pins Are Case-Hardened

Piston pins are carbonized to produce an 0.0044-inch case in a furnace 30 feet long, 8 feet wide and 6 feet high. It is equipped with rails and the work is pushed through, in boxes, by a mechanical pusher. There are 20 gas burners and inspirators, which produce a temperature of 1750 degrees Fahr. and the work is subjected to this heat for six hours. The pins are packed in nickel-chrome steel boxes, 52 pins to a box, with carbonizing material; a chain fall is provided for loading and unloading. When discharged they are set aside to cool and the pins then are unpacked, and hardened in cyanide. The cyanide is carried at 1600 degrees Fahr. and the pins are heated for a period of six minutes, when they are water quenched.

For hardening transmission gears, differential pinion gears, etc., which have been finished machined, a bat-



General view of the pouring bay in the open-hearth department of the Ford Motor Co., Fordson, Mich

tery of 20 cyanide furnaces all gas-fired is used. There are two sizes of pots, one 16 inches diameter and 25 inches deep, and the other 25 inches diameter and 20 inches deep. These are set in circular brick foundations, hooded to remove fumes and fired with one gas burner and inspirator each.

A device for suspending the gears in the heating fluid consists of a specially designed wheel or frame held parallel to the fluid surface and just above it. The gears are strung on short rods ending in hooks and these hung on the wheel. Each pot and wheel will accommodate 16 hooks. In other type pots the work is loaded, a batch at a time. These pots are are held at 1500 degrees Fahr. and the work is heated from six to 15 minutes, depending upon its characteristics. In this operation cyanide was chosen as a heating medium to prevent scaling and not for case hardening.

A steel quench tank is provided for every two cyanide furnaces. Some of these quenches are provided with frames, on which the work is hung. The frames are given a rotary motion about a horizontal axis, to produce agitation. The temperature of the oil in these quenches is kept down by recirculation through coolers. A furnace 22 feet long, provided with a chain conveyor, is used for the draw at 600 degrees Fahr. and for 1¼ hours.

Cyanide Furnaces Provided

Miscellaneous parts such as spindle pins, gear shifter shafts, steering arm balls, flywheel stud, reverse idler shafts, etc., are treated in a battery of five cyanide furnaces fired with one gas burner each. Some of this work is drawn in oil or nitrate baths after a water quench. The drawing mediums vary in temperatures from 450 to 800 degrees Fahr. according to the class of work.

Clutch plates are treated in a group of four gas-fired cyanide furnaces, at a temperature of 1600 degrees Fahr. and for a period of five minutes. To prevent warping a quenching machine is provided which holds each one tightly between jaws while being sprayed and then automatically ejects them. This work receives no draw.

A single cyanide furnace is provided for the worm gear, which is heated to 1470 degrees Fahr. for 20 minutes. These gears weigh 22 pounds each and are treated in batches of ten. They are then water quenched, the time limit being 40 seconds to prevent cracking, and drawn in oil heated to 450 degrees Fahr. In another section of the plant is a group of 66 gas-fired cyanide pots for case hardening gears, brake drums, transmission disks, clutch fingers, etc.

Battery of cyanide and periodic furnaces for heat treating various parts

The main ring gear is annealed in a unit 23 feet long, and 8 feet in cross-section. This is fired with two gas burners and one inspirator on each side located close to the charging end so as to provide both a heating and a cooling zone. A 7-foot charging table, rails, mechanical pusher and indicating pyrometers are a part of the equipment of this unit. The rings, which are 8 inches in diameter are piled 45 to a tray and then pushed through the furnace at the rate of six trays per hour. The hot zone is maintained at 1640 degrees Fahr., the work being in transit five hours.

Many other gas heating and heat treating processes are scattered throughout the plant ranging from the steel mills to the glass plant. In fact there are between 400 and 500 furnaces and heating processes in which gas fuel is used.

Ceramists Preparing for Annual Meeting

Separate simultaneous meetings by the seven industrial divisions and exhibits of equipment and products will feature the thirtieth annual meeting of the American Ceramic society which is to be held at Hotel Ambassador, Atlantic City, N. J., Feb. 5-8. Numerous social and entertainment features have been arranged for the convention days. After the close of the sessions three days will be spent in plant visitation.

The program of the refractories sessions has been scheduled as follows:

Monday, Feb. 6

AFTERNOON

"A Review of the Literature on Laboratory Slag Tests for Refractories," by Robert F. Ferguson, Mellon Institute of Industrial Research, Pittsburgh.

"Laboratory Slag Testing Furnace," by R. K. Hursh and C. E. Grigsby, University of Illinois, Urbana, Ill.

"Some Effects of Coal Ash Slag on Refractories," by R. K. Hursh and T. N. McVay, University of Illinois, Urbana, Ill.

"Prevention of the Disintegration of Blast Furnace Linings," by H. K. Mitra and Alexander Silverman, University of Pittsburgh, Pittsburgh.

Tuesday, Feb. 7

MORNING

"Winning of Missouri Diaspore," by C. R. Forbes, Missouri School of Mines and Metallurgy, Rolla, Mo.

"Cyanite as Found in Western North Carolina," by A. H. Fessler, A. C. Spark Plug Co., Flint, Mich.

"Details of Kiln Construction," by C. F. Geiger, Carborundum Co., Perth Amboy, N. J.

AFTERNOON

"Degree of Firing as It Affects Spalling," by H. D. Barger, 2116 Lennox road, Cleveland.

"Refractories in Powdered Coal Fired Furnaces," by L. V. Reese, Erie City Iron Works, Erie, Pa.

"Refractories for Water-Cooled Boiler Furnaces," by L. V. Reese, Erie City Iron Works, Erie, Pa.

"Effect of Reducing Agents on the Transverse Strength of Fireclay Brick," by A. E. R. Westman, University of Illinois, Urbana, Ill.

"Laboratory for Technical Control of Manufacture of Refractories," by L. J. Trostel, General Refractories Co., Baltimore.

"Modern Glasshouse Refractories," by S. R. Scholes, Federal Glass Co., Columbus, O.

Wednesday, Feb. 8

MORNING

"Variations in Softening Points of Refractory Mortars Caused by Method of Preparation," by Sandford S. Cole, Mellon Institute of Industrial Research, Pittsburgh.

"Therochemical Relations of Mullite in Refractories," by Harley C. Lee Inc., Maple Grove, O.

"Effect of Heat Treatment on Diatomaceous Earth," by H. M. Kraner, Westinghouse Electric & Mfg. Co., East Pittaburgh, Pa.

"The Relative Importance of Errors of Sampling and Measurement in Ceramic Research," by A. E. R. Westman, University of Illinois, Urbana, Ill.

"Possible Future Uses of Clays," by W. A. Koehler, West Virginia university, Morgantown, W. Va.

Seventh Article—Equipment, Production Principles and Difficulties and Remedies

PICKLING efficiency is largely a matter of equipment and production principles. Methods of handling include the hand windlass, air hoists, steam hoists, monorails, trolleys, overhead cranes and conveyors. The simplest piece of equipment used in pickling is a steel hook. Many articles to be galvanized are hollow, and the gases developed in the pickling process become trapped and form gas pockets. The gases quickly develop a pressure which holds the pickling solution out of contact with the steel. This spot therefore is not pickled with the result that when the article is galvanized, a large black uncoated area remains. Such a spot is illustrated in Fig. 22. In order to avoid these gas pockets the articles are turned, or pulled around with a hook, thus forcing out the gas. The pickling solution by this simple method of agitation is kept in constant contact with the entire surface of the steel base.

A different type of a hook is employed for handling large articles such as hot water boilers. The latter are pickled in clusters of three or four, each being held by a hook which fastens in the hole for the pipe in the top of the boiler. Each of the hooks are fastened to individual chains, which in turn are attached to a large ring. The ring is held by the block from an overhead airhoist or a crane. Gas pockets develop in the dome of the boiler if its position is not changed frequently during the pickling. The same trouble will develop if the boilers are pickled in a horizontal position and care must be taken to see that the boilers are rolled over. Gas pockets develop in hollow tanks, cans, nested articles, and in fact are found many times in places not suspected. Even the inside of an angle can be placed in such a position that the gas may be trapped. A gas pocket will result in a black spot when the article is galvanized.

Small articles frequently are suspended from a double hook. In some instances where it is desirable to pickle large quantities of such articles at once, two or three double hooks are joined and the material suspended in clusters. The kind, size and shape of the article, usually determine how it can be pickled most conveniently. The hook especially is adapted to articles that do not have corners, or some part projecting or protruding, such as large water boilers.

The next simplest device for handling material is a bar, or pipe for hanging either the articles themselves, or the hooks from which a large number of smaller articles are suspended. Quantity production in pickling is not a difficult matter if the material to be pickled first is classified carefully and then a special hook, hanger, basket, or other device, developed for each special case. Large coils of wire may be suspended in the pickling solution by independent hooks, or a number of coils hung from a large horizontal wooden frame, or a special acid resisting metal rod or pipe.

Articles such as pipe, or heavy castings, can be handled easiest with a chain. Some pieces have projections, or lugs around which a chain can easily and quickly be fastened. Chains can now be obtained that are made of acid resisting metals, which give long and satisfactory service.

The size, shape, weight, strength, destructibility, etc., of the material all influence the methods of handling and pickling. For example, small bolts, nuts, etc., can be handled fairly rough as little damage of any kind is done under ordinary treatment; screws, and threaded articles however

THIS is the seventh of a series of articles on pickling processes written exclusively for IRON TRADE REVIEW. The first article appeared in the Oct. 27, 1927 issue. Succeeding articles will discuss pickling compounds and inhibitors; fumes, ventilation and by-products; chemistry of pickling; tank design and construction; design of pickling departments, floors, drains, etc.; and, pickling for black tinning, tinning of copper and enameling. The author, Wallace G. Imhoff, is metallurgist, electric materials department, Hubbard & Co., Pittsburgh.

must be given more attention to keep from burning and battering the threads. A damaged pickled article, is a damaged galvanized article, and a damaged galvanized article is usually a second. In many instances a slight change of design of equipment, or a different method of handling will not only overcome the trouble, but will bring about an increase in production with better quality.

Some articles are best handled in racks. Short tubes for example can be stood in a rack where as high as 200 are pickled at one time. The simplest form of a rack for quantity production in pickling is made by placing three or four, 3-inch cypress planks on two acid resisting metal holders. Such a rack can be piled high with large or small articles that will not roll off. Long pipe often are piled in these metal holders instead of using chains. The big advantage of the rack is that a large quantity of material is all pickled simultaneously. The smaller the pieces and the more time required in loading the racks, the greater the amount of pickling labor required, when production is large. With the ordinary production required in one industry, two men can supply one galvanizing kettle without much effort; in another industry it takes 30 men to load and unload the pickling racks for one galvanizing kettle. The articles are small, and the production large in the second instance.

Weight is also an important factor to be considered in designing pickling equipment. In the sheet industry the usual method is to stand the sheets in a rack either between upright pins, in slots or grooves or between vertical separating bars. The relation of surface area to weight is large and in order to have the surface pickled properly the sheets or plates must be stood in a vertical position to allow the escape of gas and obtain the maximum speed of pickling.

Angles, frames, coils of strip steel, etc., may be piled on racks, but smaller material usually is pickled in crates or baskets. The crates and baskets usually are designed according to the kind of article to be pickled. Volume is an important factor also in the design of pickling baskets and crates. A typical example of large volume, light weight articles is to be found in the hollow ware enamel industry. The kettles, pots, etc., take up a large volume of space, have little weight, and have a large surface area. For quantity production the equipment either must be large in size, or have a large number of small units. A typical example of small volume and heavy weight is to be found in pickling steel nuts. A basket about 3 feet high and 30 inches diameter will hold about half a ton.

Another feature, which influences the design of pickling equipment, is the frailness of the articles to be pickled. Light formed sheet steel articles are bent and dented easily in handling. This feature should be kept in mind when considering whether the equipment should be made of wood or of some acid resisting metal. Frail articles stand less chance of being damaged when handled in wooden crates and on wooden floors than when handled in metal baskets on brick floors. A typical practical example is to be found in handling light sheet steel water pails and tubs. An actual case showed an average damage of 90 to 120 articles on every order of 1500 pieces. A study of conditions revealed that the causes of the damage were bolt heads projecting from the truck platform and irregularities in the brick floor of the pickling room.

FIG. 22—LARGE UNPICKLED BLACK SPOT DUE TO A GAS POCKET HOLDING THE PICKLING SOLUTION OUT OF CONTACT WITH THE STEEL BASE

The kind of material handled also influences the design and construction of the pickling crates and baskets. For example, heavy forgings and castings require a strong heavy perforated metal container; on the other hand small light material can be pickled in a light perforated acid resisting sheet metal basket or tray. Small articles are sometimes pickled on conveyors.

In some of the more progressive installations overhead cranes lift and lower the crates and baskets in and out of the pickling tanks. In still others special patented pickling machines are used for pickling tin plate, sheets, plates, strip steel, rods, pipe, and automobile frames.

Some of the most modern installations use the overhead trolley systems, monorails or tramrails. In a thoroughly modern galvanizing plant where large hot water boilers are made, an overhead crane spans the pickling department, and a single monorail system is used over the galvanizing kettle and assembling departments. The whole process is continuous and on straight line production principles.

In another thoroughly up-to-date and modern enameling plant the baskets are carried on a monorail and lowered into tanks by an air hoist. Still another plant uses the combination of the overhead crane spanning the pickling tanks with the air hoist on the crane.

Production principles may be applied to pickling and galvanizing to raise the efficiency and increase production. The line should be simplified and the varieties of products kept down to a minimum; this cuts costs and stock. Production should be balanced. If the material is pickled too fast and left to stand exposed to the corrosive action of the air, a poor inferior galvanized coating will result, and a large quantity of articles be sent back for regalvanizing. It also should be remembered that costs decrease up to the capacity of the plant, and that the cost per unit of output decreases as the output increases. A highly congested plant may be operating at a loss.

Inferior, low-quality steel cannot be pickled properly and can only of necessity give a low-quality finished galvanized product. High silicon in steel, especially in sheet steel, causes endless pickling troubles, and gives a poor galvanized finished product. Highly oxidized and burnt steel are also the cause of a poor galvanized coating.

Delays should be reduced to a minimum or eliminated entirely. Production often is hampered by the articles being nested so tightly together that the pickler is delayed in handling the

material in and out of the tanks. The distance traveled should be short and in as straight a line as possible.

Whenever possible the material should be handled on lift trucks, conveyors, overhead tramrails, cranes, or on a monorail system. Such handling reduces labor costs of pickling and decreases the time between operations.

To obtain the highest degree of efficiency from the pickling department, the tanks should be kept in good repair, they should be grouped properly, the tank construction should be standardized, and they should be operated to full capacity. If the galvanizing kettles are delayed by pickling operations more men should be added to the pickling crews; pickling and galvanizing operations should be balanced. Steps slow in the process should be speeded up; steps working too fast should be slowed down by transferring workers to the slower operations.

Steel that is rusted or deeply pitted by acid fumes, cannot be pickled and made into a first-class galvanized product. Many defects and troubles encountered in pickling and galvanizing are caused by the steel base being allowed to rust and corrode badly before being fabricated.

Industries today are looking to the solution of their pickling and galvanizing troubles in machine handling, continuous, straight line production. The control of goods-in-process depends primarily on the speed with which the various operations are performed and with which the pieces move between pickling and galvanizing. All damaged goods should be separated out of material-in-process before being pickled.

The work should be arranged so as to preserve the organization intact at all times. When business is slack working hours of all should be reduced. All process operations should be perfect the first time. It is practically impossible to turn out a first quality product of regalvanizing. In some industries it is possible to regalvanize articles immediately but pickling and regalvanizing in many instances give a poor quality product.

Many galvanizing troubles originate in the pickling department. For example, if the pickling solution becomes too weak, black spots and exposed steel will be the result. The zinc will not adhere to a steel surface that is not perfectly clean. Castings which have not been properly sand blasted and thoroughly pickled, will give endless trouble in the galvanizing kettle. This is one cause of rough galvanizing, dross in the coating, and destroyed surface contour.

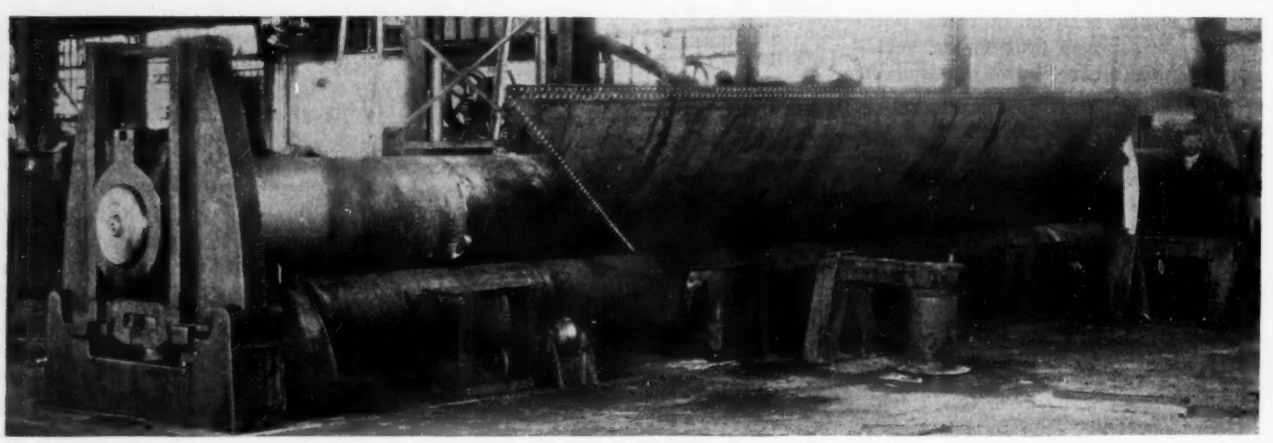
Corrosion is one of the chief causes of a yellowish color in the zinc coating. A heavy coating of green rust forms a yellow zinc-iron alloy instead of a clean bluish zinc coating. Rusted articles increase dross production and make the metal sluggish. If the rust becomes dry, the water is taken from the flux and spots develop due to the sticking of the flux to the steel.

Pickled material should not be allowed to stand exposed to the air for any great length of time because of the corrosive tendency. The stronger the acid used for pickling and the higher its temperature, the greater the degree of corrosion. The longer the time between operations, the more aggravated the condition of corrosions become. The pickled material should be kept in water-storage tanks or immersed in a weak muriatic solution.

Whenever possible the material should be washed after pickling to eliminate the iron salts. In a pickling department with a small tank capacity 14 per cent of all the iron dissolved from the steel went to form dross. In another pickling department with a large pickling capacity less than 2 per cent of all the iron dissolved in pickling found its way into the dross. Approximately 4 pounds of iron will render 96 pounds of zinc useless in the form of dross. The muriatic acid wash should be always low in iron

Low, stagnant pickling solutions produce poor quality work. The solutions should always be kept fresh and clean. One general cause of pickling trouble is the constant polluting of the pickling solution with heavy grease, and oil from drawing compounds. Steel which is not properly cleaned will always give a large quantity of defective work which must be regalvanized. Regalvanized steel is a low quality product at the best.

Lengthens Large Bending Rolls by Six Feet



EXTENDING a set of 34-foot plate-bending rolls to 40 feet was an unusual job recently performed successfully at the plant of the General American Tank Car Corp., East Chicago, Ind. This company now is said to possess the only 40-foot roll in the Middle West. The original machine, manufactured by Joseph T. Ryerson & Son Inc., Chicago, had a capacity of 34 feet 2 inches x ¾-inch with an upper roll 29 inches diameter and two 20-inch lower rolls. It had been in service since 1919.

In making the addition it was necessary to dismount the rollers, extend the base and move out the rear housing, as shown in the accompanying illustration. The 6-foot extensions, made of special iron, were slipped over the journals and welded along the circumference of the joints. Additional center support was furnished and placed at the joints of the lower rollers.

A subsequent order calling for the rolling of 200 plates 8 x 38 feet and ½-inch thick to a 34-inch radius paid for the entire extension and netted a substantial profit as well.

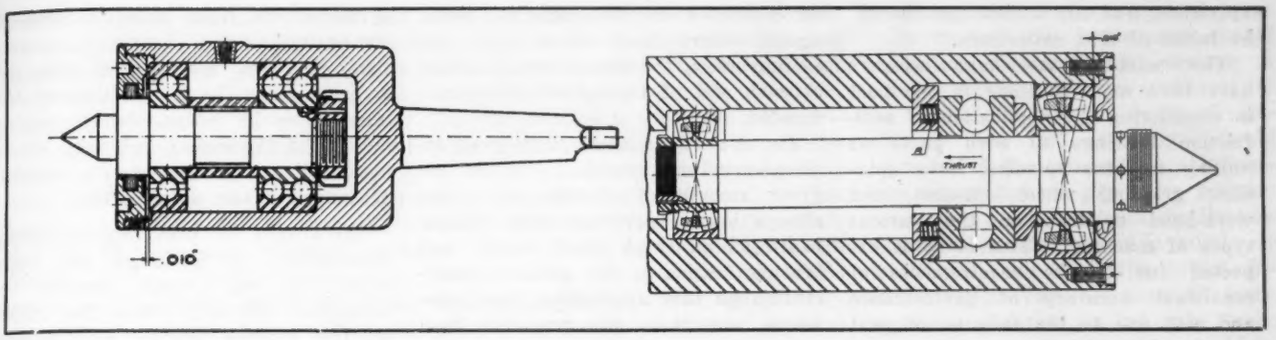


Fig. 1—Live tailstock center fitted with ball bearings. Fig. 2—This bearing carries a thrust load in one direction only

Applying Antifriction Bearings To Machine Tool Spindles

By R. F. Runge

TO THOSE in the machine tool industry who were pioneers in the application of antifriction bearings many years ago, credit is due for breaking down many of the old prejudices. This has resulted in a very decided advance and change of opinion during the last two years throughout the industry, so that we find today many important applications of antifriction bearings in locations which only a short time back were considered questionable. The result obtained required considerable improvement in material, character of finish, and closer tolerances, accompanied by considerable metallurgical and physical research and also experience gained through actual use in the field, so that a surprising advance has been made over a short period.

It is desirable first to understand the improvement which those interested in this development are attempting to attain. Antifriction bearings to be successful, must show many times the life of the older forms of bearings or considerably less maintenance, resulting in greater number of productive machine hours. The application must be one which is more foolproof than the older types of bearings, where a scraping to fit is necessary or adjustments are required. This is becoming more and more important as a greater amount of unskilled labor is finding its place in our manufacturing industry.

The next item of importance is the use of a bearing which has the absolute minimum of friction. This is quite obvious, as friction means wear, and wear in turn definitely defeats accuracy and quantity of production.

Heat also is directly coupled with the subject of bearing friction. Heating on precision machines is of decided importance, as it will be immediately understood by those who are closely engaged with machine operations on precision work that such machines do not produce close tolerances consistently until the machine has attained its operating temperature. This materially affects machines in which automatic gaging of certain forms is used, so that machine heating due to friction in bearings plays an important part in percentage of scrap production. Therefore, if the foregoing elements are realized through the application of antifriction bearings, then it must necessarily follow that there will be a power saving of some magnitude, or, on the other hand, a greater amount of power delivered to the cutting tools, resulting in increased production. It can therefore be considered in general, that the advantages of antifriction bearings have been classed here in the order of their importance and may be summed up as providing for greater production at less cost.

Rigidity is highly desirable in most machine-tool applications, thus reducing to a minimum the possibility of vibration. In that connection it might be well to mention here that an attempt has been made in the more recently designed machines, to provided heavier machines for a given operation, and in many cases where vibration has been present experience has shown that additional weight in the parts affected has very successfully overcome that objection. Mention is made of this condition for the reason that ordinarily the bearings are criticized for unsatisfactory results, whereas in many cases the trouble may be elsewhere.

In order to obtain proper results, it is necessary to analyze very carefully the conditions to be met with regard to the bearings as with any of the other machine elements. It is therefore most earnestly recommended that any one contemplating the use of antifriction bearings should have the entire problem very carefully studied by the bearing manufacturer. The several high-grade bearing producers have had considerable

Use of Antifriction Bearings Grows

ONE of the notable trends in machine tool design during the past few years has been the increasing use of antifriction bearings. The widespread adoption of ball and roller bearings has been won by actual performance, which in turn has created opinion favorable to the introduction of antifriction equipment.

The factors involved in the application of bearings to machine tool spindles is discussed in the accompanying article, which is abstracted from a paper presented before a meeting of the machine shop practice division of the American Society of Mechanical Engineers, 29 West Thirty-ninth street, New York. The author is vice president, SKF Industries, Inc., New York.

experience, and full advantage should be taken of that experience.

The machine tool manufacturers have been most cautious in the past in considering the application of anti-friction bearings to such parts as milling machine spindles, lathe spindles, grinding wheel spindles, and work-head spindles on the various types of machines. This is to be expected due to the requirements of consistent accuracy of performance and also due to the failures of past years, when the bearings had not been developed to as high a standard as at present, and improper types as well as improper mountings were used.

Figs. 1 and 2 show two types of live tailstock centers for grinders and similar uses. Fig. 2 incorporates the usual type of flat-plate thrust bearing to withstand heavier thrust loads than can satisfactorily be carried on any of the radial types of bearings. This thrust bearing is required to carry the load in one direction only, as indicated by the arrow. When the tailstock is without load it is important that the stationary ring of the thrust bearing be prevented from dropping, and for this purpose a series of light springs, A, are provided in the backing plate to keep a slight reverse pressure on the bearing.

It will be noted that the spherical type of roller bearings is introduced in this construction. This is for the purpose of obtaining greater bearing capacity within a limited space. It might be noted that this type of bearing has slightly more than twice the capacity of the equivalent-size single-row ball bearings.

Fig. 1 shows a live tailstock center employing one double-row ball bearing to take the combined thrust and radial loads and on the front end a single-row bearing for radial load only. The advantages of these designs are that there is less heating set up than with dead centers, that there is a slight reduction in power required, and that there is an almost entire elimination of redressing of the center points, permitting more accurate positioning of the work, as the centers can be brought up metal-to-metal.

The mounting shown in Fig. 3 is for a grinding spindle for external work. In this it will be noted that the bushing principle is again used. This provides for greater accuracy of bearing mounting, which is of still greater importance where higher speeds are encountered. The same special type of spindle bearing is recommended in this design. Here, again, where load capacity is not so important, the use of two bearings at each end of the spindle is recommended.

Fig. 4 shows a small high-speed internal-grinding spindle. Due to the great amount of trouble which has always been experienced with sliding bearings on high-speed work, ball bearings came in for earlier consideration on this application than elsewhere, and there has probably been more experience and greater progress made on the internal spindle than on any other type. Where a few years ago these spindles were operated at about 10,000 revolutions per minute, speeds of approximately 25,000 revolutions per minute are now being regularly used, and in certain unusual cases from 50,000 to 60,000 revolutions per minute are being attempted. In these higher speeds there are several important considerations aside from the bearings, but without proper bearing application, any other developments, such as high-speed drives, etc., are of little consequence.

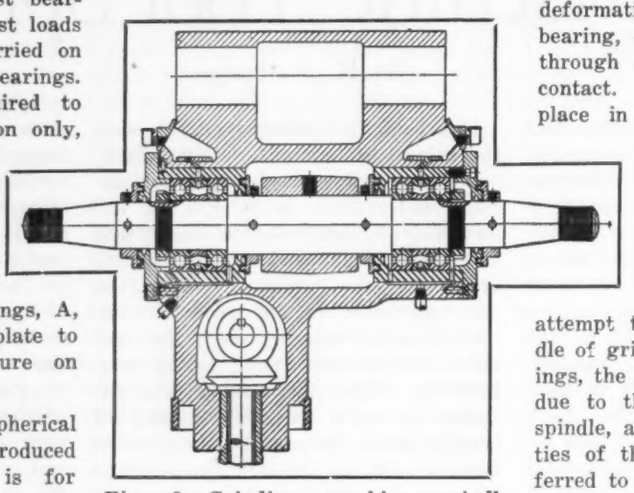


Fig. 3—Grinding machine spindle equipped with ball bearings

Fig. 4 shows again the double-bearing mounting at both the front and rear ends of the spindle, utilizing specially made spindle bearings. The pair of bearings at the front end are locked endwise in order to stabilize the spindle, and it probably does not require mentioning that the stabilizing bearing should always be located nearest the grinding wheel so as to keep to a minimum the amount of change of wheel position due to expansion of the spindle because of heat. While this principle applies particularly to grinding spindles, it also is of importance on any other type of spindle. This design then permits the expansion or contraction of the rear end of the spindle, as the two bearings at this point are permitted to float axially. Due to the special spindle-bearing construction, the two bearings in this design may also be locked through the inner races by a nut, thereby taking out all of the radial and axial looseness and providing for the amount of initial elastic deformation.

The reason for providing for initial deformation in bearings for high-speed grinding-spindle mounts is somewhat different than for those on the heavier spindle applications. In the high-speed internal spindle it is not only necessary to eliminate any play from the bearings, but, due to the high speed of the balls in the raceways and very quick acceleration, it is important that the balls be not allowed to skid on the unloaded side of the bearings. When initial elastic deformation is provided for in the bearing, each ball is definitely driven through the inner race by positive contact. This skidding which takes place in the bearing will naturally set up a slight amount of wear, thus causing looseness. Fig. 5 is a rather interesting application in view of the fact that for many years it had been considered quite undesirable to attempt to carry the work-head spindle of grinding machines on ball bearings, the general objecting being that, due to the slow speed of the work spindle, any eccentricity or irregularities of the bearings would be transferred to the work being ground. The method of mounting as shown in this design, in consideration of the accuracy of the special spindle bearings, completely overcomes that objection and is responsible for even more accurate work than has been generally done on spindles having sliding bearings, as here again the variation in oil film in the sliding bearings is completely eliminated. This construction follows closely those shown previously in so far as bearings and mountings are concerned.

Proper lubrication for ball bearings is important, although it is commonly known that they require a very small amount of lubrication. It is quite necessary, however, that that be of proper consistency, and care should be taken to use a lubricant free from acids and foreign matter. There have been certain tendencies toward the use of grease in precision and high-speed applications. Grease may be used under certain conditions, but due to the greater variety of viscosities of grease, and also the numerous fillers which are used, grease lubrication is subject to a wider range of variation than is oil

and is therefore less controllable. For such applications as have here been discussed, years of experience have very definitely shown that oil lubrication is preferable.

In the design shown in Fig. 5, as well as in most of the others, it will have been noted that oil lubrication is provided for in that oil is fed to the bearings through wick filters. It is a very common occurrence in supplying additional lubricant for machines in operation in the shops, that the end of the oil can may contain a certain amount of grit or chips; and in the case where grease is used, many times the grease has picked up, through exposure, considerable gritty foreign matter. It is rather surprising to note the amount of fine grit which will settle into an open grease can from the atmosphere. A small amount of abrasive which finds its way into the bearings is likely to develop bearing looseness due to abrasion. This is usually misconstrued as bearing wear, which it is in a sense, but not inherently due to the bearing itself. The filtering of lubricant before it enters the bearing housing has very definitely been proved a decided advantage, and on that basis alone grease is eliminated as a proper lubricant as it is not subject to efficient filtration.

Must Reduce Heating

As has been mentioned in a previous paragraph, it is advisable on precision machine to reduce as much of the heating as possible. Where grease is used, there is grave danger of generating additional heat through churning. This is also true where the bearings are partly submerged in a reservoir of oil. This is eliminated in the design presented in Fig. 5, in that the oil is fed through the wick as a filter and from there through the spacer ring *A*. Part of the oil may find its way into the bearing through capillary action along the internal surface of the spacer ring *A*, but most of the oil will drop onto the space ring *B*, the result of which is that most of the oil entering the housing is atomized. A reservoir is not permitted to form, as the oil will feed through the bearings and out through drain holes *C*. This really develops into a drop feed from oil reservoir *D*, as the feed through the wick is easily controlled. This has an additional advantage in that, should any foreign matter or abrasive find its way into the bearing housing, there is a tendency for the oil to carry it out through the drain holes. In certain instances where capillary feed is advisable, the wick is permitted to rub on a rotating part, which not only acts as a wiper for additional oil suction, but also for atomizing.

Where automatic lubrication, or a centralized system, is used for all of the bearings on a given machine, this same principle of lubrication can be applied. This principle of lubrication cannot be too strongly emphasized, as foreign matter and improper lubrication in any type of bearing are exteremly injurious, as has well been demonstrated. From the standpoint of foreign matter getting into the bearing housing, the design of enclosures is of equal importance. In the design in question, at the three positions E is shown what is termed a labyrinth seal. This may be of the single or multiple type. Those shown in Fig. 5 are single, whereas those shown in the design in Fig. 4 are multiple. This construction has proved quite satisfactory, although there still remains room for improvement. In the case of high speed, grooves filled with felt, cork, or other compositions have not proved entirely satisfactory. The rubbing friction is sufficient to burn the material, and in addition, any soft material acts as an absorbent of abrasive, and over a period of time sets up a lapping condition, which is accompanied by heat and wear.

In closing, the importance should again be emphasized of making a careful analysis of the conditions to be met in the various types of machines; that full advantage should be taken of the information the bearing manufacturers are in a position to supply, and that standardization should be definitely kept in mind. It is fair to say that the initial installation of ball bearings, if made standard practice on machine tools, should show very little, if any, higher cost than many of the present types of sliding bearings, to say nothing of the decidedly lower maintenance costs of ball bearings in comparison.

The machine tool industry, in the author's 22 years of observation, is now making greater headway than at any pervious period in the application of better bearings, and a safe prediction would be that the next important step in the way of improvement will be a more general adoption of ball bearings as standard equipment in the machine tool industry.

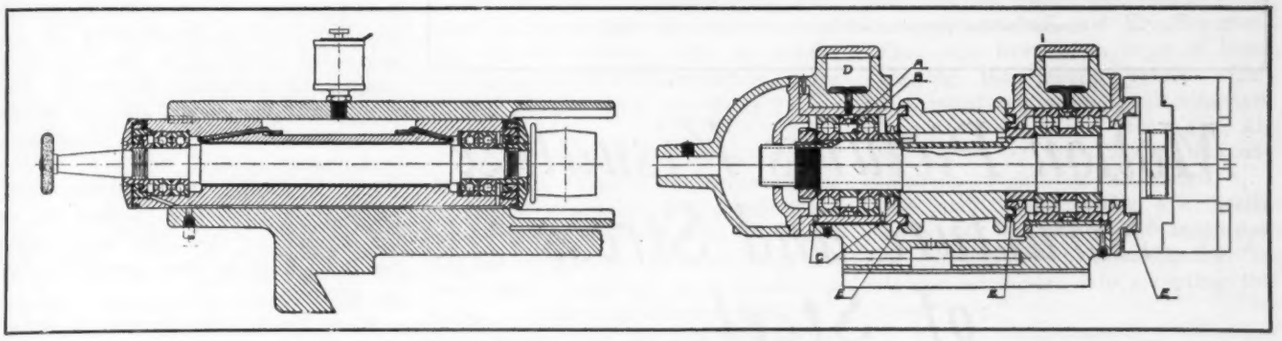
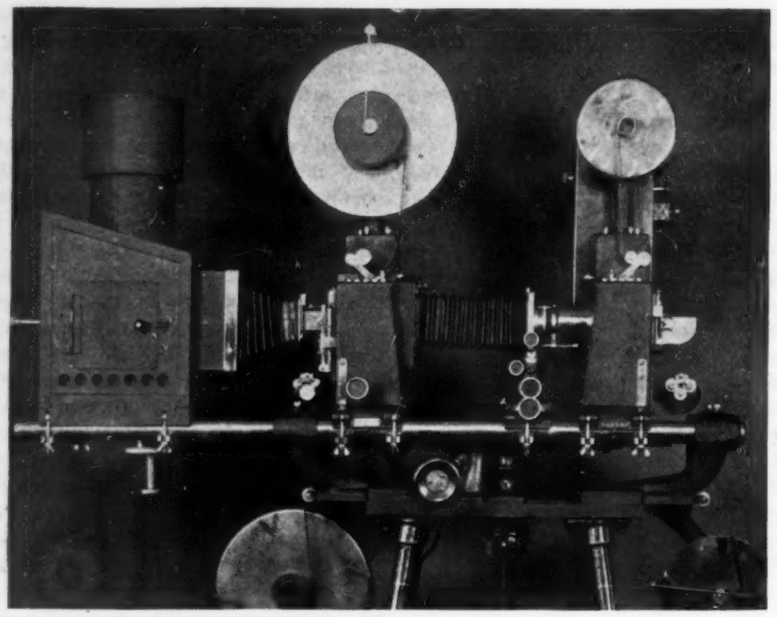


Fig. 4—Internal grinder spindle for high-speed operation. *Fig. 5—Application of ball bearings to the workhead spindle of a grinding machine*

British Tool Imports Up

British machine tool production and exports remained practically the same during 1927 as during the two previous years, according to information supplied to the industrial machinery division, department of commerce, Washington. Imports to Sept. 30 increased 16 per cent, the American share of the total being 64 per cent, or the same as last year. American sales were largely in the way of special purpose tools, such as millers, grinders, gear cutters, honers, and crankshaft balancing machines.

Norton Co., Worcester, Mass., manufacturers of grinding machinery and tools, has been awarded the plaque offered by the Worcester safety council in 1927 for improvement in safety.



Special motion picture machine used for scientific work

Motion Pictures Visualize Structure and Stress of Steel

By Harold A. Knight

A NEW method of studying iron, steel and nonferrous metals is receiving the attention of scientists. The moving picture camera is the principal instrument used, aided at times by the microscope, the X-ray, fluoroscope, telephoto lens, various screens which will pass only certain rays of the spectrum, and specially sensitized emulsions for recording rays not visible to the naked eye.

The structure of metals may be studied over a period of time while they are at rest, and also under stress. Moreover, the motion picture apparatus may reveal much about the motions of men in the steel plant, and the machines.

The ordinary "movie camera" takes 16 pictures per second. However, it is possible to take 3600 pictures, or 200 feet of film, per second, by means of a new camera. By such an instrument a "movie" of a projectile in motion can be recorded. When reproduced on the screen the movement can be slowed so that the flight and explosion of the projectile may be followed by the human eye. The effect of the impact of a projectile on alloy steel armor plate can be observed. This type of study is known as motion analysis. The action of bobbins and shuttles, poppet valves and gears in rapid motion has been analyzed.

Motion synthesis is the second type of study made possible by the motion picture. In this case the change which is to be studied is carried on too slowly to be perceptible to the eye. Moving pictures are taken at intervals of the change and when the action has been completed the reproduction upon the screen has speeded up the action and has revealed to the student the exact details of the change. Thus a piece of steel in a testing machine, where the strain upon it is prolonged and scarcely observable from minute to minute with the naked eye, may be speeded up on the screen.

This new method of studying steel and metals was advanced by Dr. A. B. Hitchins, technical and research director of the Duplex Motion Picture Industries Inc., Long Island City, N. Y., in a recent address before the American Institute of the City of New York, an organization of inventors. The talk was illustrated with a projector and screen, showing various forms of animal life in motion and evolution. The method has been used successfully on metals by Dr. Hitchins and his associates.

The principle has been adopted with considerable success in the medical field. Operations by famous surgeons have been taken by the moving picture camera and the film reproduced later in medical schools. By using the microscope in conjunction with the moving picture camera it has been possible to diagnose diseases much more quickly than before. Pictures have been taken of the disease germs at work and the development of the disease has been more plainly indicated than by former methods.

The principle of speeding up motion has been applied by showing an exaggerated evolution in the life of a plant; the budding, flowering and withering, reproducing on the screen in a minute's time what it actually took nature several weeks to accomplish. Reversing the principle, baseball games have been slowed up on the screen so that the time taken for Babe Ruth to steal second seemed an eternity.

Were Taylor, the father of industrial time study, living he would employ the principle in the study of lost motion on the part of the worker. Taylor's successors have used this method. It is possible that large publishing houses will motion-picturize textbooks. In the fascinating field of physics, the effects of light, color and sound may be shown by this method.

In considering the application of the motion picture in the study of the metallurgy of steel, it must be remembered that what the eye can see, either unaided or with the microscope or X-ray, can be reproduced on the screen. Just as the interior of an active blast furnace can be observed through the peep hole by the eye, so can the moving picture lens observe the same action and reproduce it on the screen later. If it is desired to take a motion picture of a furnace or cupola where it is necessary to leave a door open a telephoto equipment may be used, with the camera 100 feet from the object.

In taking X-ray pictures of steel or alloys the X-ray machine is arranged so as to project the shadow image on a fluoroscope, and the distance from the fluoroscopic screen to

the camera lens is completely enclosed. A special film having an integral intensifying screen is used and the lens or optical system is of quartz so as to secure the maximum response to the X-ray image. Under these conditions exposures can be made at the normal rate of 16 per second.

The advantages of making studies of metallurgical subjects on the screen are manifold. In the first place the student sits in comfort away from the fumes, congestion of apparatus and other inconveniences of the laboratory. By examining the phenomena with ease and leisure and because of the repetition made possible, the observer may note many details which would escape him during the less orderly processes of the laboratory.

The crystallization of metals is an interesting field by itself. Moving pictures have been taken of the metals in the freezing process, showing the "pine needles" beginning to push out to form the crystals, gathering within their tentacles various bits of impurities.

It has been proposed that an album be compiled of all the metals and their alloys in the crystal forming stage. Just as snowflakes have their individual patterns, so do the various crystals of metals and alloys have their own designs, which can be shown effectively on the screen.

The screen can show in graphic form the intimate details concerning the changes in the grains and their bonds during hardening, tempering and annealing. The various methods of quenching may be pictured. The various constituents of iron can be depicted; Ferrite, cementite, pearlite, austenite, martensite, troostite, sorbite, troosto-sorbite, osmondite, steadite and graphite. Behavior of the metals at their critical temperatures may be studied.

Faults of the metals such as intercrystalline brittleness, caused by the weakening of the bonds of the grains, may be studied by the motion picture. It will be possible to dramatize on the screen the gradual weakening of steel pieces which cause disaster, such as breaking of rails, axles, bridges and steering parts of automobiles.

Brake Shoe Will Move

American Brake Shoe & Foundry Co., and affiliated companies, have signed a lease to establish headquarters in the New York Central building, now under construction on Park avenue, between Forty-fifth and Forty-sixth streets, New York. Affiliated with the American Brake Shoe & Foundry Co., are the American Manganese Steel Co., Southern Wheel Co., Ramapo Ajax Corp., American Malleables Co., American Forge Co., and the Manganese Steel Rail Co. All of these companies since 1903 have had their offices in the Hudson Terminal building in the downtown section of New York.

Income Tax Affected by Recent Rulings

(*Concluded from Page* 314)

come law in a short while, but as there are two parties in congress which disagree on revenue measures, the writer does not expect to see this bill become law very quickly.

Important tax reductions are proposed not only in Secretary Mellon's plan as presented to congress, but also in the revenue bill as passed by the house of representatives. Some of the things which are likely to become law are:

The recommendation for a decrease in the tax rates of all corporations; a special reduction for corporations whose net incomes do not run above $15,000 or $25,000; broadening of the provisions relating to installment sales; a somewhat different basis for determining gain or loss in case of sales by executors; changes relating to the taxing of affiliated corporations; over-payments found by the board of tax appeals; and a number of other changes.

There may also be a repeal of some of the miscellaneous taxes such as the auto tax, but just what will be done in this respect will not be known until the bill goes before the President for signature. It is possible that the President may veto the changes in the revenue act if he thinks that they make reductions which are too large for safety. The President has already stated that he does not wish tax cuts to be made which will run over the anticipated surplus.

However, one thing is confidently expected at Washington, and that is some form of income tax reductions will be made, and if they are made it is likely that one of the first things to be done will be a slash in corporation tax rates. This will be good news to thousands of corporations throughout the country which have had virtually no relief so far as income taxes are concerned since 1917.

Cuba received four and Mexico eight electric railway passenger cars from the United States in October.

Unions Trying To Muzzle Courts, Says Edgerton

A warning to American employers to watch the action of congress on bills now pending to restrict the injunction power of the federal courts in labor disputes was voiced by John E. Edgerton, president, National Association of Manufacturers, in an address to the American Plan association, Cleveland, Jan. 26. These are the bills the American Federation of Labor is seeking to have enacted by obtaining from locals throughout the United States a mass of data showing how frequently courts enjoin trade unions. They seek to prevent relief through injunctions by providing "that nothing shall be held to be property unless it is tangible and transferable."

"Advocates of such measures have persisted for years with their insidious propaganda," said Mr. Edgerton. "They now have some hope of hamstringing the federal courts which have interfered with the lawlessness of organized labor. They are attempting to set aside one of the constitutional rights of Americans."

He said trade unions are loudly proclaiming the danger of revolution and communism in this country "to frighten employers into accepting the closed shop."

Canadian Oil Burner Men Form Association

For the purpose of improving conditions in the industry, representatives of manufacturers and dealers of oil-heating equipment in Ontario and Quebec met in Toronto, Dec. 14, and organized under the name of the Canadian Oil Heating association. L. L. Jacobs, Fess Oil Burners of Canada, Toronto, was elected president. L. D. Becker, executive secretary of the American Oil Burner association attended the meeting and outlined the work being done by his association. It is intended that the new Canadian association will become affiliated with the international body.

Crude Oil Output Falls

November output of crude petroleum was 73,778,000 barrels, a daily average of 2,459,000 barrels or 28,000 barrels under October. Oklahoma and California were responsible for the decline. Stocks of crude petroleum east of California continue to increase, being 348,885,000 barrels on Nov. 30, compared with 345,357,000 barrels Oct. 31, according to the bureau of mines.

Youngstown, Inland Merging as Third Largest Producer

PROVIDED their directors and stockholders assent, the Youngstown Sheet & Tube Co., Youngstown, O., and the Inland Steel Co., Chicago, will be merged into the third largest steel producing unit in the country. Preliminary details were concluded Jan. 25 and the consolidation is expected to be declared operative early in April.

James A. Campbell, now president of the Youngstown company, will be president of the new organization, with headquarters at Youngstown. L. E. and P. D. Block, at present chairman and president, respectively, of the Inland company, will become vice presidents in charge of production and sales of the western plants in the Chicago district.

Details of financing include the issuance of 3,200,000 shares of common stock in the new company, of which 2,000,000 shares will be distributed among Youngstown stockholders and 1,200,000 among Inland stockholders, the latter on a share-for-share basis. To adjust assets, in lieu of the regular March common dividends, Youngstown will distribute $1,250,000 and Inland $6,000,000.

It has not yet been announced what changes are in contemplation for the other securities of the two companies. The funded debt of Youngstown totals $75,000,000 and of Inland $12,525,000. Preferred shares of Youngstown mount up to 12,241,000 and of Inland 10,000,000. Common shares of Youngstown total 987,606 and of Inland 1,182,799. It is expected that many economies of operation will be effected, but at present few changes in personnel are said to be probable.

A revised statement of the capacities of the two companies, given in the accompanying table, shows the combined steel ingot total to be 4,840,000 tons. This compares with 23,035,000 tons for the United States Steel Corp. and 7,900,000 tons for the Bethlehem Steel Corp. Ranking after the Youngstown-Inland combination come Jones & Laughlin Steel Corp. with 3,000,000 tons and Republic-Trumbull with 1,800,000 tons.

The momentum of the merger movement which has gripped the iron and steel industry of northern Ohio in recent weeks is not yet spent. Final approval of the Youngstown-Inland and Republic-Trumbull deals is taken for granted, while the amalgamation of six independent sheet mills into the Empire Steel Corp. is now fact. Because the Mather and Eaton interests of Cleveland have large holdings in Central Alloy Steel Corp., Massillon, O., as well as in Youngstown and Inland, rumor persists that this producer will eventually become the alloy steel division of Youngstown-Inland.

The Corrigan, McKinney Steel Co., Cleveland, has figured in the picture since the death of James W. Corrigan, its president, Jan. 23, although on the election of John H. Watson Jr. as his successor, Jan. 31, it was stated that the company would continue as an independent producer and follow the policies of the late Mr. Corrigan. It has been thought that the company's properties would fit well into the United States Steel Corp., giving that interest steel bar production in proximity to the large Cleveland and Detroit markets. The corporation's policy against buying up competition might not be applicable, inasmuch as the corporation has no competing plant in the Cleveland district. A rumor of lesser credence is that the Otis Steel Co. and Midland Steel Products Co., both of Cleveland, would make a three-cornered merger with Corrigan, McKinney.

The Birmingham, Ala., plant of the American Radiator Co. started 1928 with the largest payroll in several months and orders sufficient for full operations for several months.

Capacity Joined in Youngstown and Chicago Districts

YOUNGSTOWN SHEET & TUBE CO. AND SUBSIDIARIES

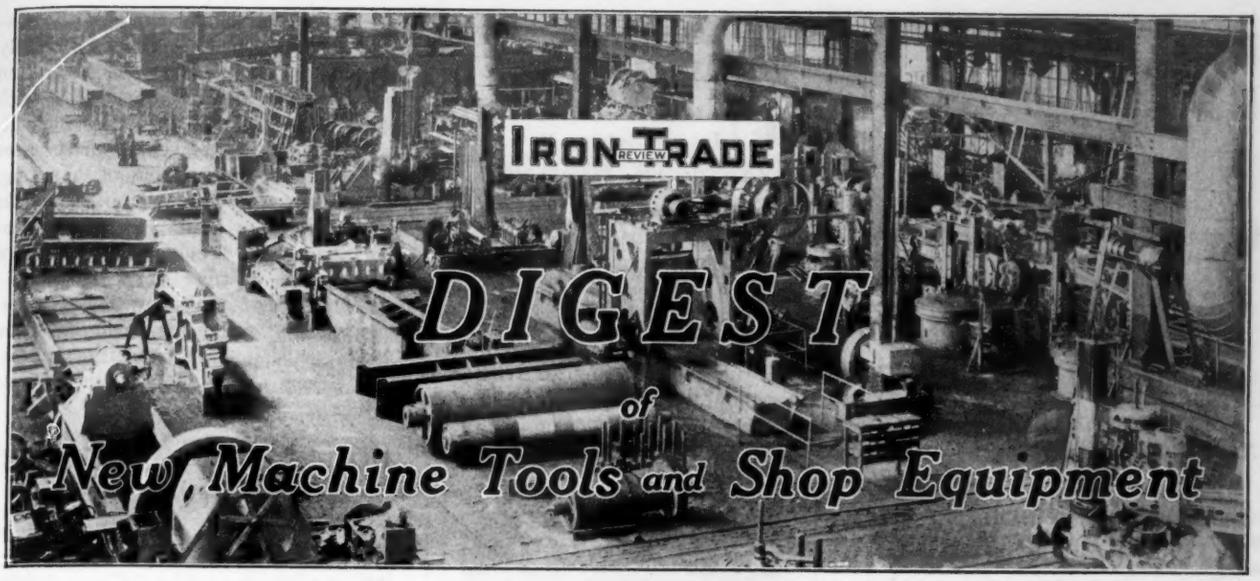
	Campbell Wks.	Brier Hill Works	Mayville Wks.	Ind. Harb. Wks.	South Chic. Wks.	Hubbard Works	Total
Blast furnaces	4	3	2	2	4	2	17
Pig iron capacity	900,000 tons	550,000 tons	275,000	468,000 tons	810,000 tons	325,000 tons	3,328,000 tons
By-product ovens	306 Koppers	84	108	120 Semet-Solvay	—	—	618 ovens
Yearly coke capacity	1,500,000 tons	370,000 tons	300,000	648,000 tons	—	—	2,818,000 tons
Open hearths	12	12	—	4	—	—	28
Bessemer converters	2	—	—	2	—	—	4
Steel ingot bes	780,000 tons	—	—	600,000	—	—	1,380,000
Steel ingot O.H.	840,000	780,000	—	240,000	—	—	1,860,000
Steel ingot total	1,620,000	780,000	—	840,000	—	—	3,240,000
Sheet capacity	160,400	60,000	—	West Res. 70,600	—	—	291,000
Blk. steel pipe	600,000	Evanston, 72,000	—	240,000	Zanesville 120,000	—	932,000
Wire products	370,000	—	—	—	—	—	370,000

INLAND STEEL CO.

	Indiana Harbor	Chicago Heights	Milwaukee	Yearly Capacity
Blast furnaces	4	—	—	870,000
By-product ovens	204 Koppers	—	—	900,000
Open hearths	26	—	—	1,600,000
Hot rolled products including	200,000 tons rails	—	—	
	332,000 structural	—	—	
	200,000 plates	—	—	1,320,000
	185,000 tons bars	45,000	—	
	140,000 tons sheets	—	50,000	

COMBINED CAPACITY BOTH COMPANIES

Blast Furnaces	Pig Iron	Coke Capacity	Ingot Capacity	Pipe Capacity	Sheets	Tin Plate	Plates & Skelp	Bars	Wire
21	4,198,000	3,718,000	4,840,000	932,000	481,000	115,000	1,570,000	435,000	370,000



Do Expositions Make a Difference?

MACHINE tool orders continue to be maintained at a volume correspondingly higher than that obtaining in many other lines of the equipment industry. Explanation of this is not clear, yet there is evidence that users of machine tools gradually are gaining a more definite conception of the economic advantage of operating an efficient new machine in place of a partially obsolete old one. Knowledge of this is being driven home by the pressure of competition in practically all lines of manufacture.

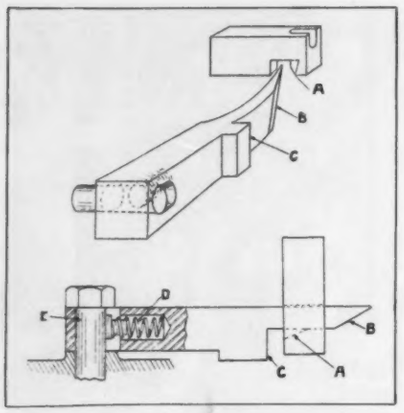
But why should it be more pronounced in the machine tool industry than in other branches of the equipment building field? Why, for instance, should orders for machine tools remain consistently higher, proportionately, than those for foundry equipment? Certainly builders of the latter have not been backward in designing and offering new equipment embracing many improvements and affording remarkable economies in operation. Foundry equipment manufacturers have been fully as active in this direction as the builders of machine tools. Likewise, the merchandising methods in both industries are similar and of about equal intensity. Activities of their respective markets also have been fairly parallel.

However, the routine of events affecting the distribution of machine tools and foundry equipment was radi-

(*Concluded on Page* 332)

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
1.	Draw-cut shaper	Morton Mfg. Co.	Special design, heavy-duty	Jan. 12
2.	Electric welder	General Electric Co.	Requires single operator	Jan. 12
3.	Keyway cutter	Morton Mfg. Co.	Portable; 72-inch cutting stroke	Jan. 12
4.	Rheostat	Cutler-Hammer Mfg. Co.	For generator field	Jan. 12
5.	Vertical turret lathe	Bullard Machine Tool Co.	Increased capacity; five spindles	Jan. 12
6.	Power shovel	Ohio Power Shovel Co.	Features roller bearings	Jan. 12
7.	Excavator	Harnischfeger Corp.	Diesel engine powered	Jan. 12
8.	Disk grinder	Porter-Cable Machine Co.	Redesigned; better balanced	Jan. 12
9.	Electric motor	Fairbanks, Morse & Co.	Windings inclosed, ventilated	Jan. 12
10.	Chipping hammer	Cleveland Pneumatic Tool Co.	Pneumatic, improved design	Jan. 12
11.	Electric motor	Lincoln Electric Co.	Starts across line	Jan. 12
12.	Bolt pointer and threader	Landis Machine Co.	New design; automatic	Jan. 12
13.	Air preheater	Combustion Engineering Corp.	Plate-type, welded	Jan. 12
14.	Punch press	E. W. Bliss Co.	New type; high-speed	Jan. 12
15.	Centrifugal pumps	Allis-Chalmers Mfg. Co.	Pump and motor built integral	Jan. 12
16.	Electric attachment plug	Cutler-Hammer Mfg. Co.	Hard rubber; unbreakable	Jan. 12
17.	Grinder	Kling Bros. Engineering Works	High-speed, heavy-duty	Jan. 12
18.	Conveyor idler pulley	Chain Belt Co.	Extremely hard; antifriction	Jan. 12
19.	Metal lath clip	Milwaukee Corrugating Co.	Metal strap and tie wire	Jan. 12
20.	Lathe spindle	Monarch Machine Tool Co.	Roller bearing	Jan. 12
21.	Punch press safety latch	Loshbough-Jordon Tool & Machine Co.	Shock absorbing; replaces brake	Feb. 2
22.	Flexible couplings	Lovejoy Tool Works	Great flexibility	Feb. 2
23.	Arc welder	Wilson Welder & Metals Co.	Considerable flexibility; close control	Feb. 2
24.	Boring and turning mill	Niles Tool Works Co.	New, smaller model	Feb. 2
25.	Hand truck	Oxweld Acetylene Co.	For oxyacetylene equipment	Feb. 2
26.	Excavator attachments	Harnischfeger Corp.	Trench hoe and skimmer scoop	Feb. 2
27.	Gas meter	Connersville Blower Co.	Rotary type; smaller capacity	Feb. 2
28.	Slitting shear	Whitney Metal Tool Co.	Throatless; roller bearing	Feb. 2
29.	Engine lathe	Niles Tool Works Co.	Heavy-duty; special features in head and carriage	Feb. 2
30.	Vertical miller and die sinker	Reed-Prentice Corp.	New model; for high-speed, heavy-duty	Feb. 2
31.	Roll grinder	Cincinnati Grinders Inc.	Self-contained; table force feed lubricated	Feb. 2
32.	Milling machines	Brown & Sharpe Mfg. Co.	New standard line; simple control	Feb. 2
33.	Power Press	E. W. Bliss Co.	Special double-action; unusually large	Feb. 2
34.	Bolt threader	Williams Tool Corp.	Double geared head	Feb. 2
35.	Cutting blowpipe	Oxweld Acetylene Co.	Entirely new design	Feb. 2
36.	Speed reducer	Fawcus Machine Co.	Worm type; high reduction ratio	Feb. 2
37.	Electric tractor	Yale & Towne Mfg. Co.	Heavy-duty; four-wheel drive	Feb. 2
38.	Boiler	Homestead Valve Mfg. Co.	Rapid, high-pressure, portable	Feb. 2



No. 21—Safety latch for punch presses

Latch for Punch Presses Is Shock Absorbing

No. 21

Loshbough-Jordan Tool & Machine Co., Elkhart, Ind., has announced a new safety latch with which all of its new inclinable, open-back punch presses are being equipped. The purpose of the shock-absorbing latch is to stop the momentum of the shaft with the latch instead of the brake, and this is done without breaking the clutch pin. With this new latch it is claimed that a press can be operated at from 25 to 50 per cent higher speeds than usually is recommended without sacrificing the safety of the press or the operator. It is claimed also that elimination of the brake effects a 10 per cent saving in power. Details of the new latch are shown in the accompanying sketch. *A* shows the beveled slot in the clutch pin which engages the wedge-shaped latch *B* when extracting clutch pin from flywheel. The shoulder *C* receives the impact of the clutch pin and the shock is absorbed by spring *D*.

Flexible Couplings Show Greater Flexibility

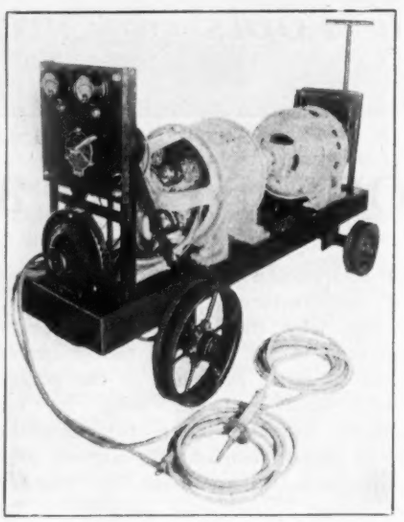
No. 22

Lovejoy Tool Works, 319 West Ohio street, Chicago, announces a new line of flexible couplings giving a much greater range of flexibility. Angular misalignment up to 7½ degrees in each direction, parallel misalignment 1/16 to 3/16-inch and endwise shaft movement ¼ to ¾-inch are made possible without loss of efficiency. This coupling is a jaw coupling with loosely floating resilient rollers assuring a rolling contact which transmits the force of compression. It is said to be shock proof, noiseless, balanced, smooth running, reversible and interchangeable. It is made in 11 sizes varying from ¾ to 5-inch shaft diameter.

Arc Welding Set Covers a Wider Range

No. 23

Wilson Welder & Metals Co. Inc., Hoboken, N. J., is announcing several new features on its line of standard welders, chief among which is the arrangement which eliminates live connections on the front of the control board. The main switch is enclosed and mounted on the back of the board and only a dial and pointer appear on the front. The reactor is underslung and so placed over the rear axle that it is protected from



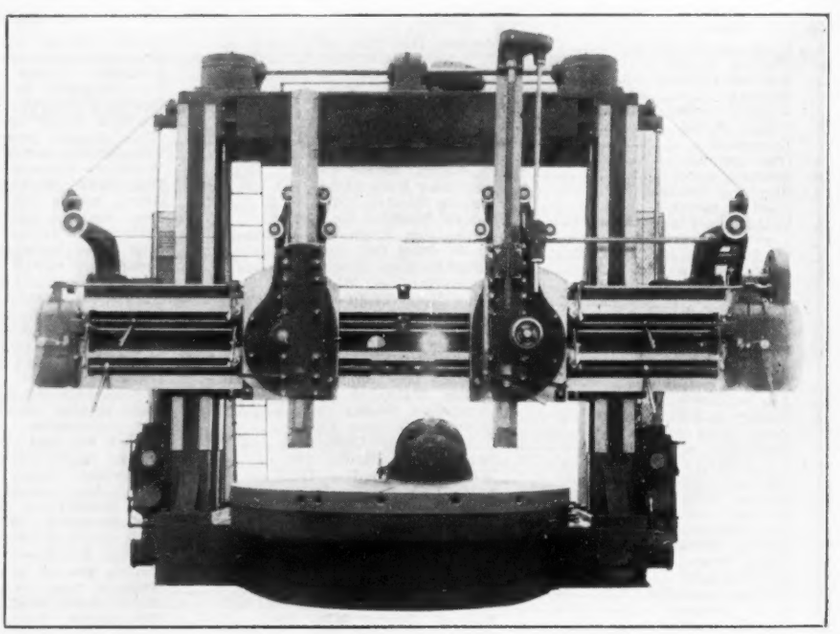
No. 23—Arc welder has flexible control

injury. Another new feature of the control is a rotary switch designed to give close welding regulation, an important requirement in both production and repair work. With large electrodes and heavy current, the machine will respond instantly by simply placing the pointer on the maximum point of the dial. Combined with these two points is a third, which allows the welding of the thinnest sheet metal the arc is capable of handling. In other words, the machine provides either short or long arc, high open-circuit voltage for long arc, and low open-circuit voltage for short arc—at the will of the operator. Numerous models are made, ranging from 25 to 800 amperes capacity and being either motor or gasoline engine driven.

Boring Mill Is Patterned After Larger Model

No. 24

Niles Tool Works Co., Hamilton, O., has completed the design of a 12-inch boring and turning mill which, in general, combines the new features of the recently announced 18 and 20-inch mills. These features include double table tracks with pressure lubrication, sliding gear feed boxes with gears running in oil, forged steel bars, square box section crossrail with bearing on face of housings and extending back between the housings as well, separate motors at back of rail for rapid traverse of bars and saddles, direct reading micrometer dials for saddle and bar movements, limit switch for elevation of crossrail, totally enclosed drive box with all-steel gears and pressure lubrication, steel table gear, rail elevating gears on top brace totally enclosed, etc. In addition, the right-hand head is equipped with a thread chasing attachment of the lead screw type



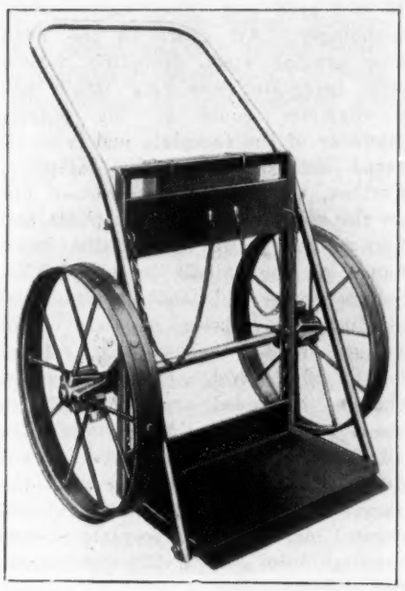
No. 24—Boring and turning mill built in smaller sizes

giving leads up to 2 inches. The machine, which is shown in the accompanying illustration, is driven by a 35-horsepower, direct-current, 4 to 1 variable-speed motor giving table speeds ranging from 0.56 to 18.8 revolutions per minute. A 7½-horsepower motor is used for elevating the crossrail and two 5-horsepower motors, one for each head, for rapid traverse of saddles and bars. The regular feed and traverse movements of bars and saddles are obtained through large friction clutches housed at the end of the rail, but for the chasing mechanism the motion is positive through an additional train of shafts and gears. A handwheel on the saddle releases the bar rack pinion when the chasing attachment is in use.

New Truck Handles Gas Welding Equipment

No. 25

Oxweld Acetylene Co., 30 East Forty-second street, New York, has placed on the market a new type of two-wheel truck for oxyacetylene equipment. Increase in wheel size was a primary consideration in the design, larger wheels making the truck easier to handle. The truck shown in the illustration has 24-inch steel wheels having 3 x ⅜-inch grooved tires. The cast-iron hub is bored to fit the cold-rolled steel axle and a grease cup is provided. Lubrication is of particular importance in overland pipeline work where the truck may be hauled long distances at fairly high-speed behind a motor truck. The handle is continuous and the upper portion is bent back about 8 inches so that the truck can be handled easily by an operator of small stature. The tool box is larger and is provided with a cover and a holder for extra blowpipe tips. Where 24-inch wheels are not required, 14-inch wheels may be used instead merely by changing the position of the axle to the lower set of holes in the frame.

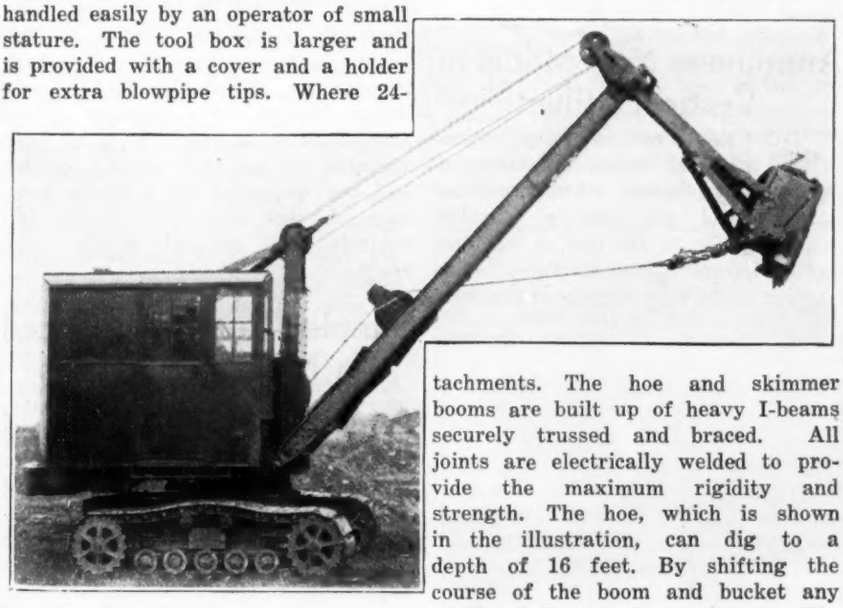


No. 25—Truck for handling oxyacetylene equipment

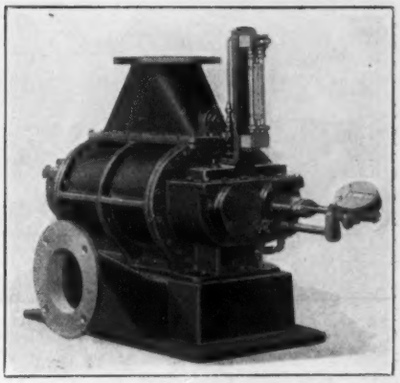
Brings Out Attachments for Excavators

No. 26

Harnischfeger Corp., Thirty-eighth and National avenues, Wilwaukee, in bringing out a ½-yard excavator early in 1927 anticipated that shovel, dragline, clamshell and pile driver attachments would meet all requirements. However, trench hoes and skimmer scoops soon were being called for and in response to this demand the manufacturer has designed two additional attachments. The hoe and skimmer booms are built up of heavy I-beams securely trussed and braced. All joints are electrically welded to provide the maximum rigidity and strength. The hoe, which is shown in the illustration, can dig to a depth of 16 feet. By shifting the course of the boom and bucket any width of the trench can be cut. The hoe dipper is shaped from heavy boiler plate and the seams are arc welded. The skimmer bucket is constructed of heavy boiler plate and has a horizontal travel of 13 feet. Heavy spring bumpers are cast integral with the boom foot, thereby eliminating heavy jolts on the boom as the bucket rolls back to the machine. All five models are convertible for use as shovel, dragline, trench hoe, skimmer scoop, clamshell, pile driver, etc., by a simple change of booms or attachments. It is never necessary to change the drum as a special patented spider is permanently installed on the power drum. The laggings required for various classes of work are split in two sections and can be quickly bolted to the drum spider. All wear consequently develops on the inexpensive laggings and not on the drum.



No. 26—Trench hoe attachment for excavator

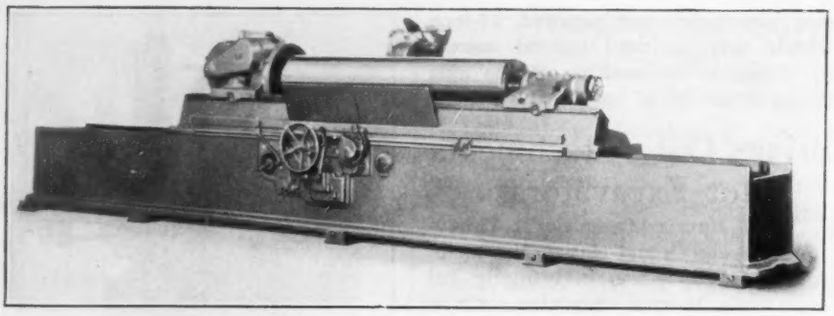


No. 27—Smaller meter for gas measurement

Adds Two Small Sizes to Gas Meter Line

No. 27

Connersville Blower Co., Connersville, Ind., has announced as an addition to its line of rotary displacement meters two new sizes which, while operating on the same general characteristics as the larger units, extend dependable accuracy of measurement to smaller volumes of gases and air. These meters, one of which is shown in the accompanying illustration, are well adapted to the departmental system of control and accounting of gas consumption in steel mills, heat treating and forging shops, chemical plants and other large industrial plants using gas. The displacement per revolution is a fixed volume that cannot be adjusted. The design of the meter is simple, eliminating any delicate mechanisms by using cast iron or steel parts. Antifriction bearings are used and these are placed out of the zone of gas flow in easily accessible chambers at the ends of the shafts. The 4 x 12-inch meter has a normal capacity of 8000



No. 31—Self-contained roll grinder with forced feed table lubrication

cubic feet per hour and the 5 x 15-inch, a capacity of 10,000 feet. Small space is required for installation and the building of a foundation or digging of a trench is unnecessary. The counter, registering in cubic feet, is mounted on an extended shaft and set at an angle convenient for easy reading of the large clear figures.

Slitting Shear Features Roller Bearings

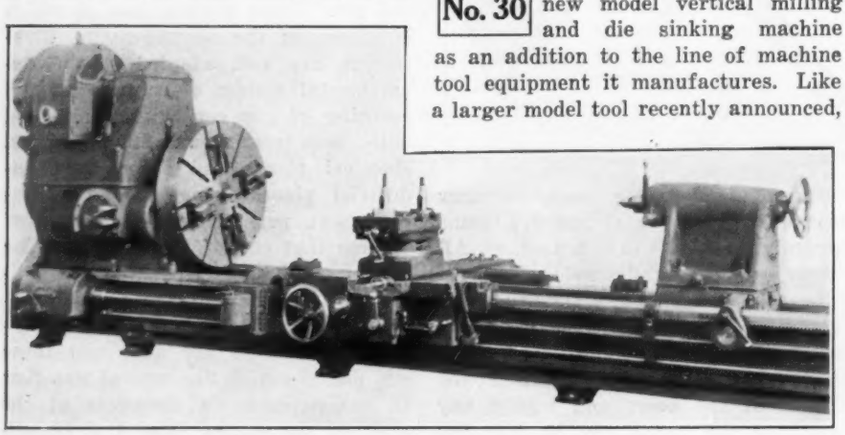
No. 28

Whitney Metal Tool Co., Rockford, Ill., has added to its line of punches and shears a new roller bearing slitting shear. It is made of drop-forged alloy steel, and all wearing parts are hardened. The eccentric crank pin and trunnions are all roller bearing. The capacity of this shear, which is throatless, is all thicknesses up to and including ⅛-inch. The shearing blades are inserted and are 4¼-inch in length. The lowering blade is adjustable to take up any wear.

Heavy-Duty Engine Lathe Greatly Improved

No. 29

Niles Tool Works, Hamilton, O., has improved its 42-inch heavy engine lathe, particularly in the headstock and carriage. The main spindle bearing dimensions have been increased about 40 per cent and other parts correspondingly. All gears in the head now are of steel, including forged steel faceplate gear ring which has a diameter equal to the outside diameter of the faceplate and is shouldered and bolted to the faceplate. Further, the faceplate is pressed upon the spindle by hydraulic press and fits accurately up against the large flange on the spindle to which it is bolted, giving additional strength and rigidity. The lathe has an actual swing of 43 inches with a bed length of 32 feet. Four mechanical changes of speed are obtainable in the lower half of the headstock for either alternating or direct-current drive, which in conjunction with the variation in motor speeds for direct-current drive, gives faceplate speeds ranging from 1.9 to 231 revolutions per minute. For alternating-current drive the top half of the box affords six additional mechanical changes, making 24 changes in all, ranging from 1.5 to 169.5 revolutions per minute. The drive is by a 20-horsepower variable-speed motor, but may be increased to 25 horsepower or more, according to the service required.



No. 29—Engine lathe with improved headstock and carriage

Announces New Model of Vertical Miller

No. 30

Reed-Prentice Corp., Worcester, Mass., announces a new model vertical milling and die sinking machine as an addition to the line of machine tool equipment it manufactures. Like a larger model tool recently announced, this machine was developed to meet the demand for a high-speed precision unit of a type suitable for the vertical milling of large and heavy castings and for the machining of drop forge and body dies, etc. Roller bearing construction is used throughout, including the main spindle bearing. Throat depth is 20 inches; distance from spindle nose to table, 24 inches; longitudinal table travel, 48 inches; and cross table travel, 16 inches.

Roll Grinder Is Built in Various Capacities

No. 31

Cincinnati Grinders Inc., Cincinnati, has placed on the market a self-contained roll grinder with a 24-inch swing and forced-feed table lubrication. The machine is built in 13 different length capacities from 48 to 336 inches in 24-inch intervals. In the accompanying illustration, a cast-iron sleeve 17 inches diameter and 7½ feet long is mounted in the grinding position. In method of control the machine resembles the 12 and 16-inch plain self-contained grinding machines manufactured by the same company. It is considerable larger, however, proportionately heavier and more powerful. The V and flat table ways are flooded with filtered oil from a pump geared directly to the drive shaft. All standard machines are built with single tables, but machines up to 144 inches between centers have been designed with two tables, an upper work table or swivel table and a lower sliding table. The wheel head is heavy in design with a 30-horsepower motor mounted on the outside of the machine coupled to the main drive shaft by a flexible coupling. The spindle is driven from the main shaft through an adjustable flexible rope drive. Twelve table traverse speeds are obtained through a gear box mounted on the back of the grinder bed and controlled by a single lever from the left front. All levers and controls are grouped within easy reach.

Simple Controls Placed on Milling Machines

No. 32

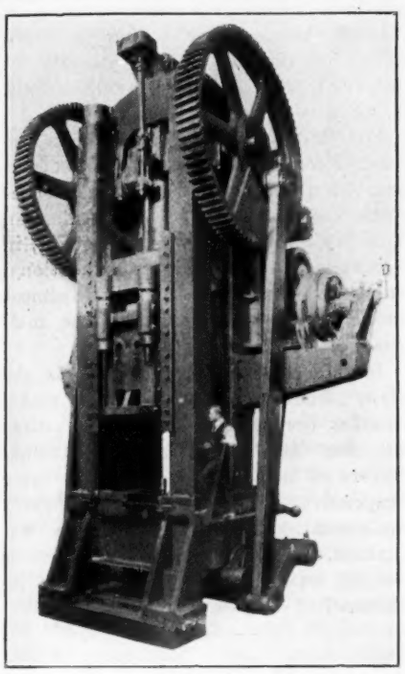
Brown & Sharpe Mfg. Co., Providence, R. I., has added to its line of milling equipment a series of standard milling machines which feature simplicity of control and convenience of operation. These machines, which are made in two universal and two plain types, have sliding gear feed and speed transmission; dry multiple

disk clutch, self-compensating for wear; all gear drive; heat-treated steel gears; antifriction bearings for feed, speed and power fast travel transmissions; spindle running in phosphor bronze bearings; and one-piece knee screw completely guarded at all positions. Many improvements have been incorporated in the control and lubrication systems.

Double-Action Press Is Large and Powerful

No. 33

E. W. Bliss Co., Fifty-third street and Second avenue, Brooklyn, N. Y., has built a special-type, double-action press of immense proportions,



No. 33—Double-action press of unusual size

weighing about 400,000 pounds and having a crankshaft 18 inches diameter at the bearings and 21 inches diameter at the pin. It is the largest single-crank, double-action press which the company has built. It will draw and lift out work up to a depth of 11 inches and is adapted for the cutting and drawing of very heavy metal. The capacity is 1000 tons of which 500 tons is on the blankholder and 500 tons on the plunger. The press has a tie rod construction in which the entire working strain is taken by four large steel tie rods which tie together the crown, bed and uprights and is so arranged that if desired the inner and outer slides can be locked together and the press used as a single action press for work requiring a pressure of 1000 tons. When used as a double-action press, the blankholder is operated by long links inside the housing which are connected to a crankshaft in the bed. Adjustment of the blankholder is by four large adjusting screws and plunger adjustment is made by a 15-horsepower motor mounted on the crown. The machine is driven by a 125-horsepower motor, is triple geared and has twin drive.

Bolt Threader Cuts Time Required for Set-Ups

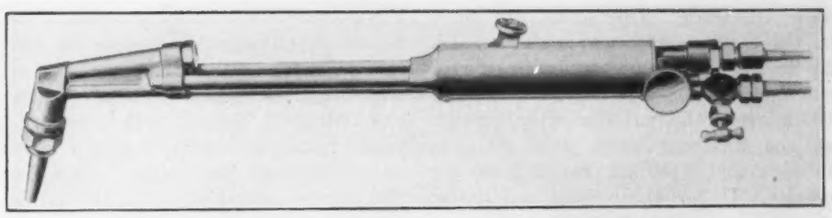
No. 34

Williams Tool Corp., Erie, Pa., is announcing a new double-headed bolt threader with eight spindle speeds for each head. It is a geared-head machine with complete control for either side and enables the operator, in cutting long threads, to work two set-ups at the same time. Another important saving is in the set-up time when two different sizes are being run through together with frequent changes from one size to the other. The 1½-inch machine cuts ⅜ to 1½-inch threads, and the 2-inch machine cuts ½ to 2-inch threads. The electric driving motor is mounted in the base of the machine.

Improves Design of Gas Cutting Blowpipe

No. 35

Oxweld Acetylene Co., 30 East Forty-second street, New York, has added to its line of equipment a new cutting blowpipe which it is claimed will not backfire even under the most severe operating conditions.



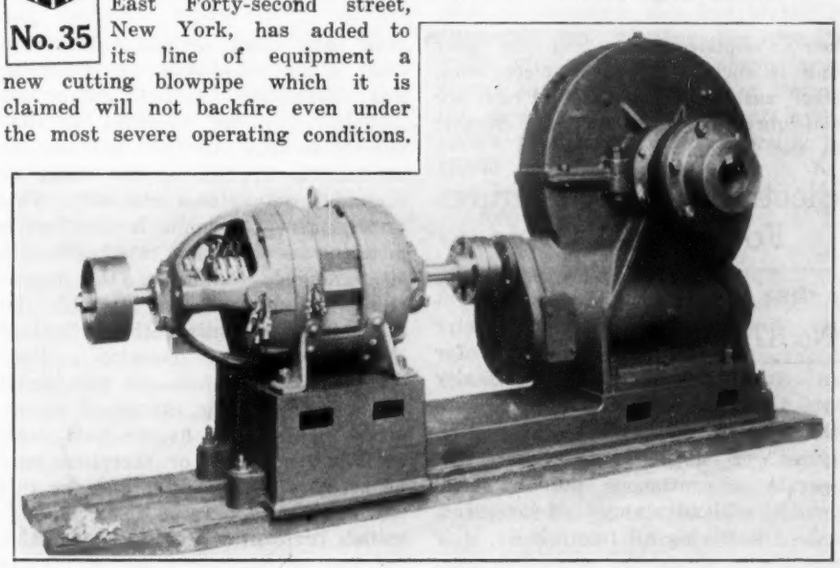
No. 35—Oxyacetylene blow torch of improved design

The three gas tubes are straight, having no bends either outside or inside the handle. The cutting valve is of the same design now used on all hand cutting blowpipes made by the company. Both the head and rear body are pressure forgings, giving better appearance, increased durability and lessened weight. Interchangeable nozzles are provided so that the blowpipe may be used with either medium or low pressure acetylene. Obviously the medium pressure nozzle cannot be used with low pressure acetylene, but the low pressure nozzle can be used with a medium pressure acetylene supply if low pressure is maintained in the hose and blowpipe. To accomplish this, the regulator should be adjusted to give a flame showing an excess acetylene cone not more than 1 inch long when the acetylene valve on the blowpipe is wide open The acetylene valve should then be adjusted to obtain the neutral flame.

Worm Reduction Gear Is of New Design

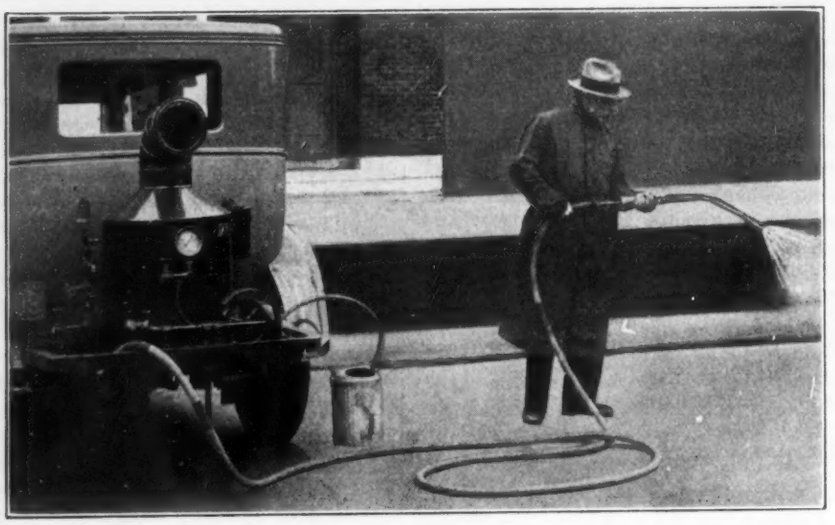
No. 36

Fawcus Machine Co., 2818 Smallman street, Pittsburgh, now a part of Gears & Forgings Inc., is placing on the market a new type of worm reduction gear specially designed to give high ratios of speed reduction with



No. 36—Worm reduction gear which gives high ratios

high efficiency. The units are built in three sizes with capacities of 15, 20 and 35 horsepower, with corresponding ratios of 98:1, 190:1 and 160:1, respectively. The actual speeds of the different units are: 900/4.4; 1150/6; and 1150/7.2 revolutions per minute. Under these load conditions, the efficiency is about 75 per cent. They are suitable for any sort of slow-speed, heavy-duty application that comes within the limit of their horsepower range. The horsepower ratios and speeds can be varied up or down 50 to 300 to 1. The driving motor is connected by a flexible coupling to a helical pinion which drives a helical gear mounted on an extension of the worm shaft. This gear drives the worm, which in turn drives the worm wheel. A factor contributing to the high efficiency is that all shafts are mounted in roller bearings as shown in the accompanying illustration. The gear reduction unit and driving motor are mounted on a heavy semisteel base and the gear unit is enclosed in a two-piece semisteel case. Gears and bearings are self-lubricated from an oil reservoir in the bottom of the case.



No. 38—High pressure boiler for extremely rapid vapor generation

Electric Truck Features Four-Wheel Drive

No. 37

Yale & Towne Mfg. Co., Stamford, Conn., has brought out a 4-wheel drive tractor to meet the demands for an electric-driven unit of heavier type. The machine is said to be capable of an ultimate draw bar pull in excess of 4000 pounds and will operate a continuous pull of 1000 pounds without danger of overheating. By driving all four wheels, it is possible to obtain the maximum traction with the given overall weight. Four-wheel brakes are provided. The frame construction is unique in that the pressed steel slide members or main supporting members are strong and integral parts with the axle yokes. This gives the frame a depth of 18 inches, producing a member thoroughly capable of withstanding jolts and jars in addition to the usual bending stresses to which it is subjected.

Boiler Generates Vapor in Few Seconds

No. 38

Homestead Valve Mfg. Co., Homestead, Pa., has developed a high-pressure boiler for extremely rapid generation of water vapor for cleaning and other uses. It is said that vapor at 150 pounds pressure can be generated in the 10-horsepower boiler in from 60 to 90 seconds. The equipment is so light and compact that it can be carried about on a small shop hand truck or mounted on the rear of an automobile as shown in this illustration. A fuel pump and a fluid pump are operated simultaneously so that just the right amount of heat is applied to the water to change it into steam instantly. This arrangement of pumps is in effect a metering device. The mechanism is so arranged that when the predetermined pressure is attained the pumps stop operating, thus affording protection to the operator. Pure water, soap solutions, or practically any other cleaning compound in solution can be used as the fluid. Natural gas, gasoline, or acetylene may be used as a pilot light and for this reason this apparatus may be installed permanently or made portable for use on the job. Because water vapor containing cleaning compounds or soap removes heavy grease almost instantaneonsly, the equipment can be used in mills and factories in which large housings, such as rolling mill housings, become coated with grease and dirt. Other applications are in repair shops and paint stripping departments.

Do Expositions Influence Equipment Orders?

(*Concluded from Page* 327)

cally different. Interest of users of machines was aroused to a high pitch in October by the Cleveland exposition, which did more than any single previous event to show users how intently builders are trying to serve their customers. The educational value of the Cleveland exhibits still is an asset to the industry.

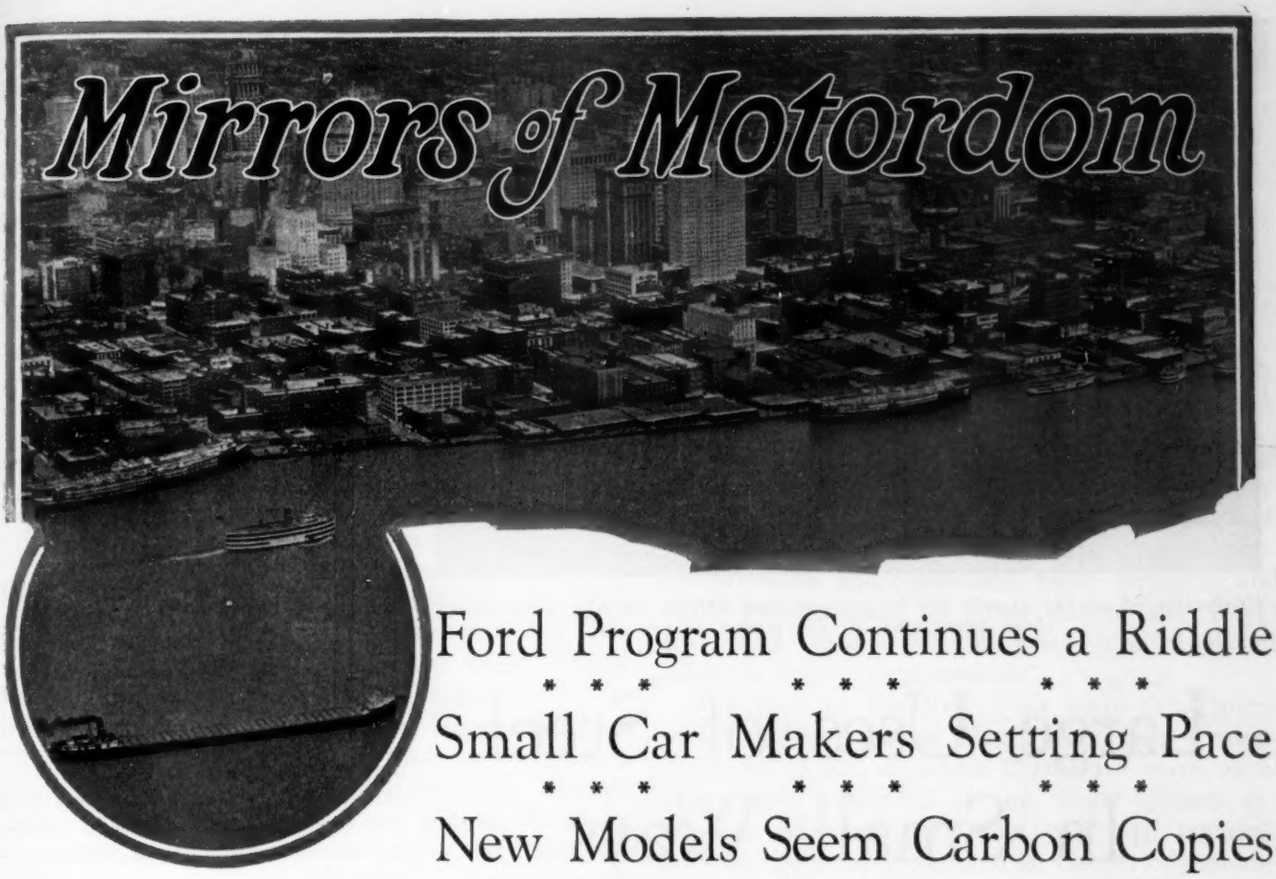
Foundry equipment builders, on the other hand, lacked the support of an exhibition in 1927. The last previous exposition of the American Foundry association was at Detroit, in September, 1926, and its educational value probably had dwindled almost to negligible proportions by the mid-year of 1927.

Is this contrast significant? Is the show situation responsible in a measure for the relative volume of orders in the two industries? Certainly buyers of machine tools now are more responsive than those of foundry equipment. How can this be explained, except by placing some weight on the value of exhibition influence?

Holds Banquet in Boston

Over 300 members and guests of the New England Iron and Hardware association attended the thirty-fifth annual banquet held Jan. 26 in the ball room of Hotel Somerset, Boston. W. A. Decatur, the Decatur-Hopkins Co., president of the association, delivered the address of welcome. J. M. Fitzgerald, assistant to the chairman, committee on public relations of eastern railroads, spoke on rail, motor and air transportation. Hon. Thomas H. Dowd, justice, municipal court of Boston, spoke on "The Triangle of Justice—the People, the Bench and the Bar." S. L. Powers, former congressman from Massachusetts, served as toastmaster.

The E. & G. Brooke Iron Co., Birdsboro, Pa., ran 111,756 tons of iron through its pig casting machine during 1927 with a total replacement of 11 pig molds.



Ford Program Continues a Riddle

* * * * * * * * *

Small Car Makers Setting Pace

* * * * * * * * *

New Models Seem Carbon Copies

Detroit, Jan. 31.

IT IS now eight months since Model T was officially abandoned and more than two months since Model A was formally introduced, and Henry Ford still has them guessing. Where is that thousand cars supposed now to be rolling daily off the assembly line? Who is responsible for the tipoff that the laws of various states requiring two independent braking systems were being violated? Why has it taken the Ford organization the better part of a year to bring out a new model while competitors make the changeover without a break? What further changes can be expected before Model A really attains a production basis?

There is an obvious note of cynicism in most speculation concerning Ford, contrasted with almost pure curiosity last summer and fall. Even conceding that many of the alleged new models are partially revised editions, it becomes increasingly evident that when the assembly lines at Fordson and Highland Park stopped last spring there was little or nothing on the drawing boards, and there has been no clamorous mob of dividend-expectant stockholders to force the pace.

* * *

FIVE hundred cars, or thereabouts, constitutes the daily stint at Fordson. Some departments have swung into a faster gait; the foundry, for instance, is pouring 900 motor blocks daily. But the assembly line is held down to the rate of the slowest department and surplus parts production is being shipped to branch service and assembly depots.

The retooling program, for one thing, is longer drawn-out than anticipated. The second set of fender dies has just been received. The plan of making the gasoline tank integral with the cowl has not been a quantity-basis success, as in the final forming operation losses up to 40 per cent are rumored; the terne plate, although normalized, frequently gives under the strain. It is possible that the tank will be hung at the rear, in orthodox fashion. Some delay also has been encountered in mounting the emergency brake upon the transmission, instead of having it operate the two rear service brakes only.

It will be some weeks, undoubtedly, before the 2000-daily mark can be attained, and with 700,000 orders claimed to be in hand and Fordson having an assembly capacity of over 10,000 units daily, even this can scarcely be heralded as "production."

* * *

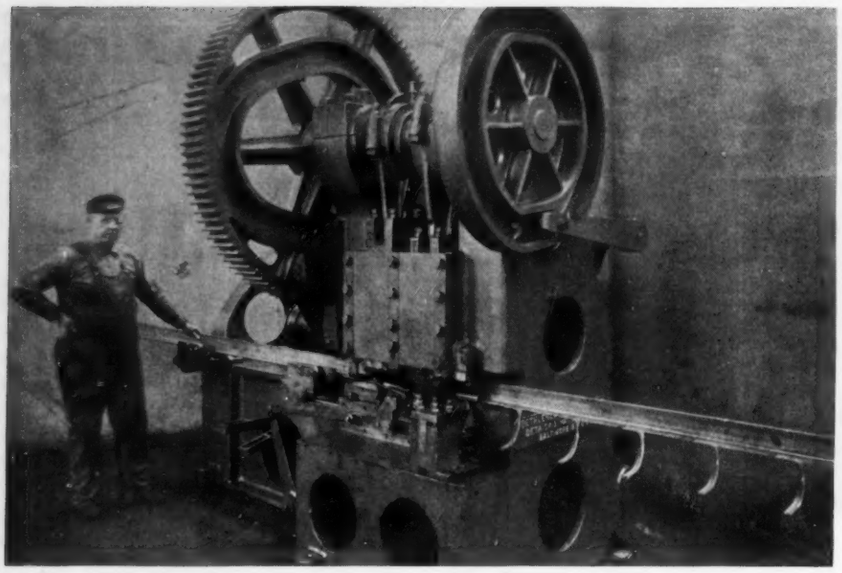
MEANWHILE, Ford competition is not slack. Chevrolet is getting set for a run of 6000 daily and has scheduled 140,000 for March, which would set a new high. From the steel releases coming from Willys-Overland, Whippet will soon threaten previous records.

For such makers as Chrysler, Dodge, Hudson-Essex and Reo, January has proved a much better production month than December and the outlook for February continues bright, but prospective buyers have not unchained their purses to the extent they have displayed enthusiasm at the shows. Only a slight rise has been necessary to exceed the 133,178 total of passenger cars and trucks in December but whether the 238,826 units of last January have been passed remains in doubt. For Detroit the most cheerful development is the 89,758 persons on Ford payrolls, or 45,000 more than last spring. Recent additions have been at the rate of 4000 weekly.

* * *

COMPETITIVE metals have not taken any measurable amount of business from iron and steel in the new models now being displayed. There is a trend from gray iron to aluminum alloy in pistons. Malleable iron has lost ground to pressed steel, for which Ford is largely responsible. Two cars now carry composite steel and wood bodies instead of all-aluminum. Adoption of four wheel brakes on small cars, making it unanimous,

(*Concluded on Page* 334)



Production of paving guards can be accomplished on one machine performing three operations, as illustrated above

Large Uses of Steel In Small Ways

Paving Guards

THE heavy traffic to which streets and roads in America are being subjected constantly has placed a premium upon a more highly developed road construction that can resist the impact of heavily loaded trucks and buses.

The disintegration of concrete, asphalt and brick road surfaces is a common sight to all those who have occasion to drive or travel the main highways of the United States. To combat many of the evils to which other materials are subjected under stress, steel has been employed. One product of steel in road work that is finding increased application is paving guards. These guards have been designed to give additional strength along the edge of roads and to prevent the surface paving from slipping and wearing away.

W. S. Godwin Co. Inc., Baltimore, is one of the principal manufacturers of paving guards in the United States. This organization estimates that from 800 to 1000 tons of steel is consumed annually in the manufacture of paving guards.

Paving guards are manufactured usually of 0.15 to 0.18 carbon steel angles 10 and 20 foot lengths. These angles range in size from 1¼ x 1¼ x $\frac{1}{8}$-inch to 4½ x 3$\frac{5}{16}$-inch. The angles weigh from 1.5 pounds to 7.7 pounds per foot.

The guard rail made by a leading manufacturer is produced by one machine in three operations. The steel angle is inserted into the proper place, one lever is tripped and a section of the angle about 1 inch wide and 9¾ inches long is cut out on two sides. A second lever is tripped and this causes the piece that has been cut free on two sides to be pushed down vertically at right angles from the bottom of the guard.

The third operation consists of a horizontal mechanism that pushes the bent section away from the vertical position at the same time applying a twist. These three operations are performed while the angle remains in one position. As soon as these three processes have been completed, the angle is advanced another ten inches and the same operations are repeated. These sections are in 20 foot lengths. The bent portions of the angle serve as anchors to secure the guard rail in a rigid and permanent position.

Curb guards are made in 10-foot lengths and upon completion are treated to a hot galvanizing process.

THIS is the one-hundred eighth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:

Vacuum Bottles	*Suspenders*
Highway Guards	*Screw Hooks*
Numbering Machines	*Steel Bridging*
Joist Hangers	*Mail Boxes*
Straight Razors	*Steel Shelving*
Piano Wire	*Automobile Bumpers*
Type Molds	*Tire Chains*
Swords	*Bathroom Fixtures*

Mirrors of Motordom

(*Concluded from Page* 333)

calls for no inconsiderable tonnage of steel and castings.

* * *

THE high narrow radiator, full crowned fenders and other characteristics which distinguished the LaSalle on its introduction are now common to a majority of the new models. It has been aptly said that after the LaSalle was brought out a number of carbon copies were run off, with some of the latter ones rather blurred. This is true both within and without the General Motors organization.

A steel salesman who sees through an observing eye believes the time not far distant when expenditures of $500,000 to $1,000,000 to beautify a few body lines will be taboo. In any other industry such an uneconomic condition could not be tolerated, he contends. Only the lack of real competition permits the automotive industry to be so lavish in its annual gyrations, especially in style.

* * *

BECAUSE the export market, especially in Egypt, now presents greater sales opportunities for tractors than the domestic, the assembly of the Fordson tractor, it is understood, is to be transferred to Kearny, N. J. Parts, however, will continue to be manufactured at Fordson. In the past year the output of tractors at Fordson has averaged about 200 daily.

Will Dedicate Library

The new Louvain library, destroyed by the Germans during the World War, and restored by American benefactions, will be dedicated July 4, according to the Engineering Foundation, 29 West Thirty-ninth street, New York. Under the auspices of the foundation, a clock and carillon will be placed in the tower of the new building at a cost of $80,000 to be subscribed by members of the engineering profession in this country.

Editorials

Germany Tops Foes in Steelmaking
Common Sense Cures Business Ills
Women Permanent in Industry
Co-operation a Boon to Red Metal

Germans Again Lead Continent

NINE years ago Germany laid down her arms, confessedly the vanquished in the World war, but today she is again paramount in steelmaking on the continent. In 1927, for the first time since the World war, the Germans made more steel than all their former continental antagonists, Russia excepted.

Germany's production of steel ingots and castings last year was 15,975,000 tons, and if Austria and Hungary be added, 16,830,000 tons. Against this, the combined output of France, Belgium, Luxemburg and Italy was 15,640,000 tons. In 1926 Germany was in the minority by 12,938,000 tons to 15,575,000 tons, and in 1925 by 12,689,000 tons to 13,645,000 tons. Since 1925 the steel tonnage of the German group has increased 35 per cent, but that of the French only 13 per cent.

If Great Britain be enrolled with the French group the scales are turned. The British 1927 production of 9,200,000 tons swells the total to 24,840,000 tons, or 50 per cent in excess of the German. In the prewar year 1913, Germany and Austria with 21,217,000 tons beat out Britain, France, Belgium, Italy and Russia with 19,806,000 tons. By way of comparison, the United States output of raw steel in 1927 was 44,345,000 tons, or within 6,000,000 tons of all Europe.

Russia, a lone wolf militaristically, continues to come back. Her raw steel output last year was 3,485,000 tons, which compares with 8,100,000 tons for France and 3,645,000 tons for Belgium. In the past five years Russia's steel production has increased 400 per cent, and last year was only 18 per cent short of 1913.

Working Women Here to Stay

HIGH rates of wages offered to women in industrial occupations, in comparison with what they might obtain in other lines of endeavor, are resulting in an increase of such workers. Another reason is the fact that automatic machinery is making the work suitable for women, both lightening the burden and making it safer. Women no longer are to be considered temporary factors in shop work. An investigation discloses that nearly one-fourth are married. The adaptability of women for certain mechanical processes and operations, their dexterity and skill, demonstrated by them during the World war, make them available where the supply of labor is below requirements.

A survey by the New York state department of labor shows that in Binghamton, with a population of 67,000, of which 25,000 are wage earners, nearly one-third of the wage earners are women, of whom 45.5 per cent are married. Among the women engaged in the strictly manufacturing operations in that city, 50.9 per cent are married.

The National Industrial Conference board, carrying the survey a step farther, disclosed that in all cities of the United States with a population between 25,000 and 100,000, 23 per cent of the women workers are married.

The median annual wage of single women workers in Binghamton industries is $855.68, while that of married women is $877.12. The attractiveness of such work, coupled with the plentiful supply of it in many districts, makes it an easy matter for married women to contribute considerably to the family income, or to be self-supporting.

The number of married women in many occupations led a congressman recently to suggest placing a tax on incomes of those who live with their husband, but it has not obtained much support.

Wise Management the Panacea

SAYS an authority on industry: "In seeking to stabilize employment, which after all remains one of our major industrial problems, we must look to intelligent managerial control of the various processes of industry rather than to any artificial manipulation of our supply of money and credit."

Sound doctrine, indeed, but with more than

employment in its orbit. Does it not, in fact, epitomize the remedy for practically all of the ills besetting industry, small as well as large?

The average manufacturer in the United States employs about fifty persons. His problems of accelerated production, maintained quality, low costs and a satisfied and inspirited personnel differ only in degree from those of large-scale industry. It is an insidious suggestion which whispers to the average manufacturer that he is handicapped because he cannot budget large sums for welfare and efficiency programs.

"Intelligent managerial control" is the panacea, everywhere available. The business papers each week present an array of theories, programs and experiences of management and production such as no one manufacturer could hope to corral. From such organizations as the National Industrial Conference board flows a steady stream of analyses and surveys of forward ideas. Mr. Hoover's revivified department of commerce and the department of labor are untiring in equipping business with statistics and data from which the alert executive may draw conclusions fitting his need. Never has so much on management and production been broadcast.

"Intelligent managerial control" is, after all, only common sense. It is no mysterious quality, predestined for an affluent few, nor has it a Midas touch. Its price is sound thinking, comprehensive reading and a sense of adaptability, and its sequel a progressive, wholesome, reasonably-profitable business.

Copper Points Way for Steel

BACKED by a comprehensive, well-rounded program, the copper industry in recent years has established an enviable record in extending its markets and developing new uses for its products. Witness the yearly increases in production of the red metal since 1921, when producers organized on a co-operative basis. The record shows that a production of 537,197 tons in 1921 has risen to 1,476,506 tons in 1927, each year registering a gain in output over the preceding one. Few, indeed, are the industries which can point to such growth in a corresponding period.

The record expansion in copper, while a tribute to the sagacity and foresight of producers, also is a striking example of the efficacy of co-operation. Conditions in the copper industry are different from those in the steel trade, but they are not so radically different that methods found successful in promoting the interests of one would not be found beneficial, to some extent at least, in the other. It might be argued by some that steel is nearer its saturation point than is copper and consequently encounters greater resistance in developing new consumption outlets. This fact, if true, however, makes it even more imperative for the steel industry to put still greater effort into the programs already initiated, looking toward the development of new uses.

Aside from a normal growth in use, the steel industry can hope for little expansion without the stimulus of programs directed toward developing new and wider applications. Only through such efforts can the industry avoid a condition verging upon practical stagnation.

What Our Readers Are Thinking

Forecasts Tendency in Machine Tools

To the Editor:

OUR most highly refined and successful machine tools of today would probably have met with little success if they had appeared ten years ago, because industry was not ready for them. Some of the newest design features of machine tools are new only in that they are now first applied to machine tools. Many of these innovations have been contemplated for years.

To the specialist in machine tool design some of these features are already considered as history, although new to users of such machines. As an observer of the latter type there appears to me three phases of trend in design of machine tools:

First—The application of hydraulics, pneumatic, and electro-magnetic specialties, additional to motors, to standard types of machine tools to supersede gears, racks, screws, cams and cranks.

Second—Regular, or at least much more common production of multipurpose machines by builders of standard machine tools for performing several operations simultaneously on the work. These operations are frequently dissimilar.

Third—Refinement of design to assure long sustained efficiency with minimum attention while running, and fewer and shorter interruptions of operation for adjustments, renewals, and refinishings.

The application of hydraulic feeds to machine tools is of great general interest, and the writer is more impressed with the importance of hydraulic feeds on milling machines than in any other accomplishment of the past year in the machine tool industry. The tendency of machine tool builders to make special modifications in design to suit the special requirements of a manufacturer is encouraging. Fewer machine tool users will design and build their own special machinery.

Developments in the machine tool industry in 1927 seem to forecast the following:

That cold pressing or coining operations will come into more general use; also machining lapping; machining with diamonds; finish surface grinding from the rough; measuring and inspection with optical and electrical instruments; increased adaptation of magazine and automatic work charging devices.

JOHN C. HANNA, *Chief Engineer,*
Hanna Engineering Works.

Chicago, Dec. 30, 1927.

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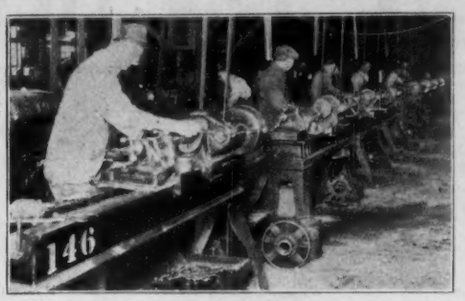
E. L. SHANER, Editor. J. D. PEASE, Advertising Director. F. F. LIGHT, Circulation Manager.



Machine Tools and Shop Equipment Described. Page 327.

UNUSUAL diversity is shown in the machine tools and shop equipment described in this issue of IRON TRADE REVIEW. The 18 items referred to, beginning on page 327, include besides machine tools, power plant equipment, welding apparatus and material handling machinery. Many of the descriptions are illustrated. A recapitulation of the information also is given in compact form, with the name of the item, the name of the builder, its purpose or use.

The Readers' Page

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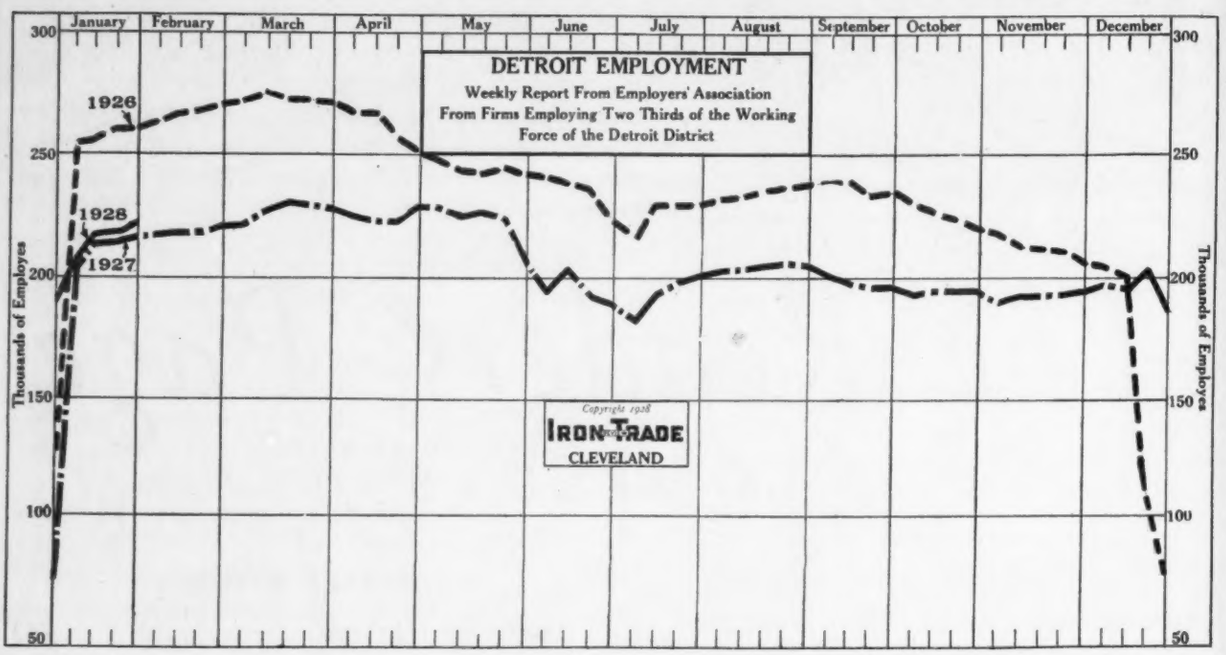
The Business Trend



January Brought Industrial Expansion

By JOHN W. HILL, Financial Editor

AT THE close of the first month of the new year the trend of industry may be definitely defined as upward. This is in rather marked contrast with the downward swing of the pendulum which characterized the closing phase of 1927. Thus, it appears, the turn of the year actually brought a turn for business activities.

WHILE the January industrial records are not yet available for most industries, there have been sufficient indications to show the present trend. Steel mill production has been stepped briskly to nearly 80 per cent of capacity compared with about 60 per cent at the low point in December. Pig iron production and blast furnace activity have increased, and freight car loadings have spurted ahead.

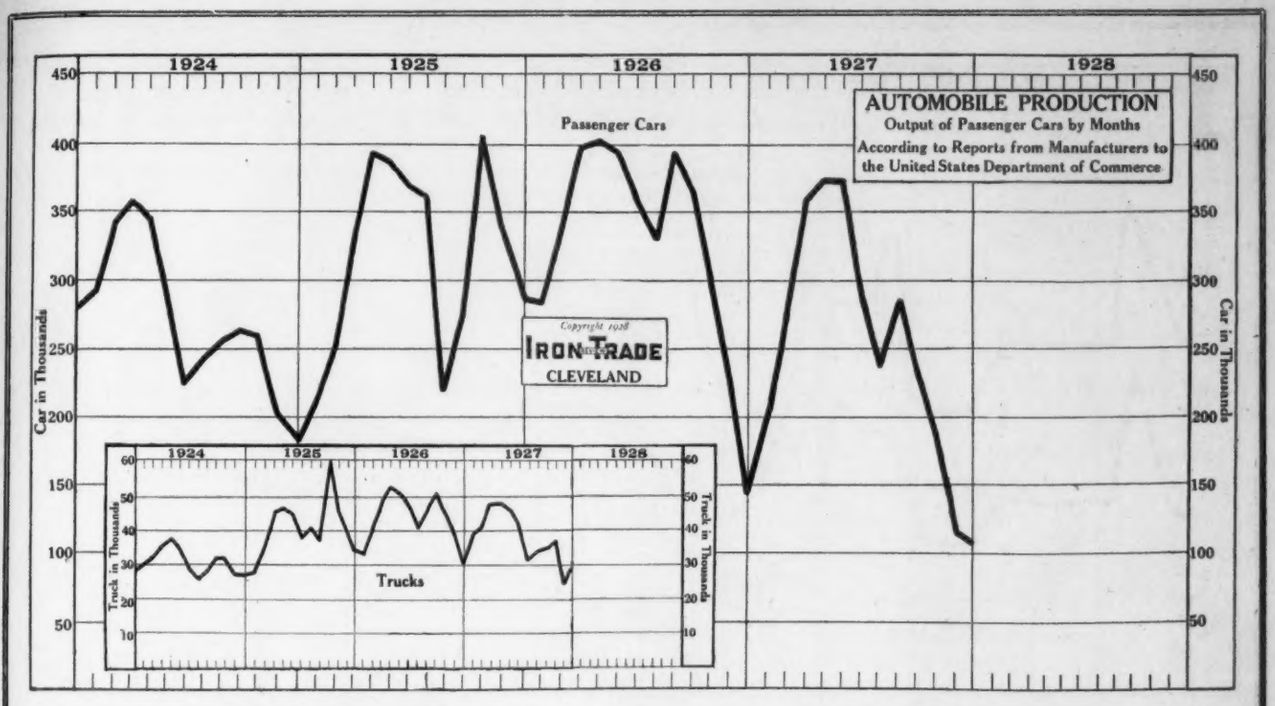
THE gain for the iron and steel industry is of important significance. Steel sometimes is spoken of mistakenly as a barometer of business. This is not true in the sense that steel forecasts movements in general trade. Its true significance is that of a reflector or thermometer. When activities begin to stir in the great steel consuming lines orders for steel are placed with producers of that commodity.

THESE orders are promptly reflected in better operating schedules. Steel mills do not begin to push up their production in any important measure before they have orders and specifications for material. This is especially true under present conditions of hand-to-mouth buying. Therefore, it may be accepted with a good deal of confidence that improvement in steel represents a real turn for general business.

PROOF of this in some lines is found in certain weekly records. One of these is the showing of employment in the Detroit automobile district. Each week in January has brought gains in payrolls in that center. For the week ended Jan. 24 the total number employed, as reported by the Detroit Employers' association was 221,180.

THIS was an increase of 4665 over the preceding week and one of 5477 over the corresponding week of 1927. Actual progress in expanding production of motor cars is here reflected. Employment in the Detroit district is still below that of this time in 1926. This is partly due to the fact that Ford has not yet attained full speed, together with the additional factor of increased operating efficiency.

The Business Trend

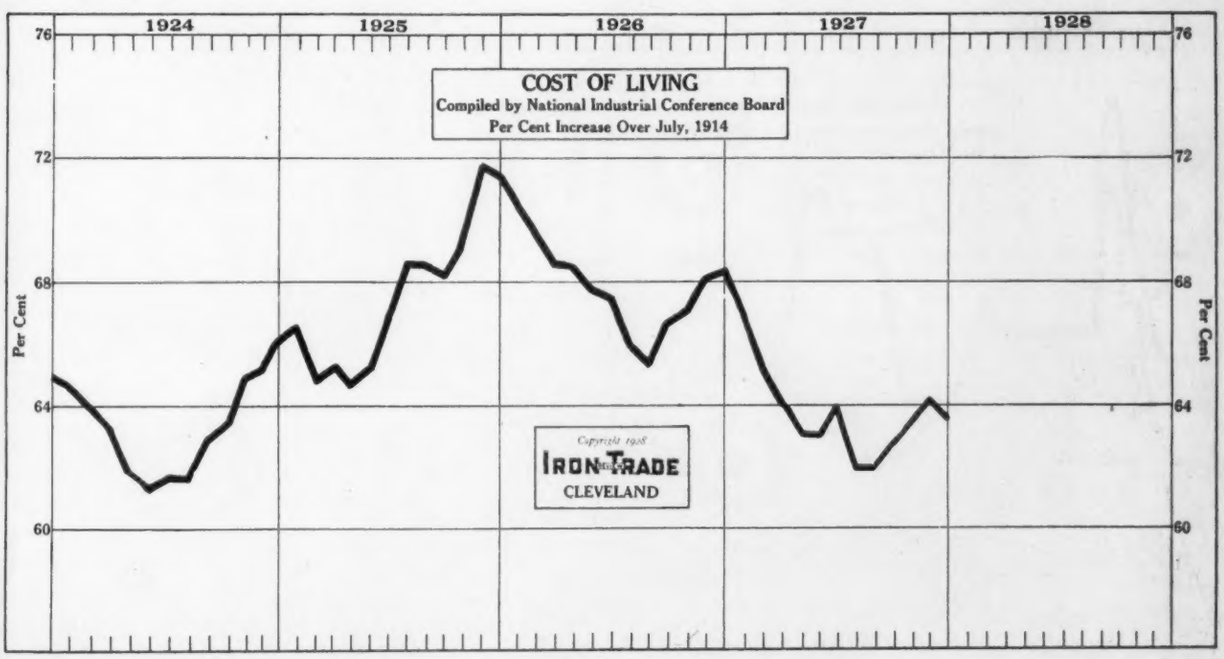


Automobile Production

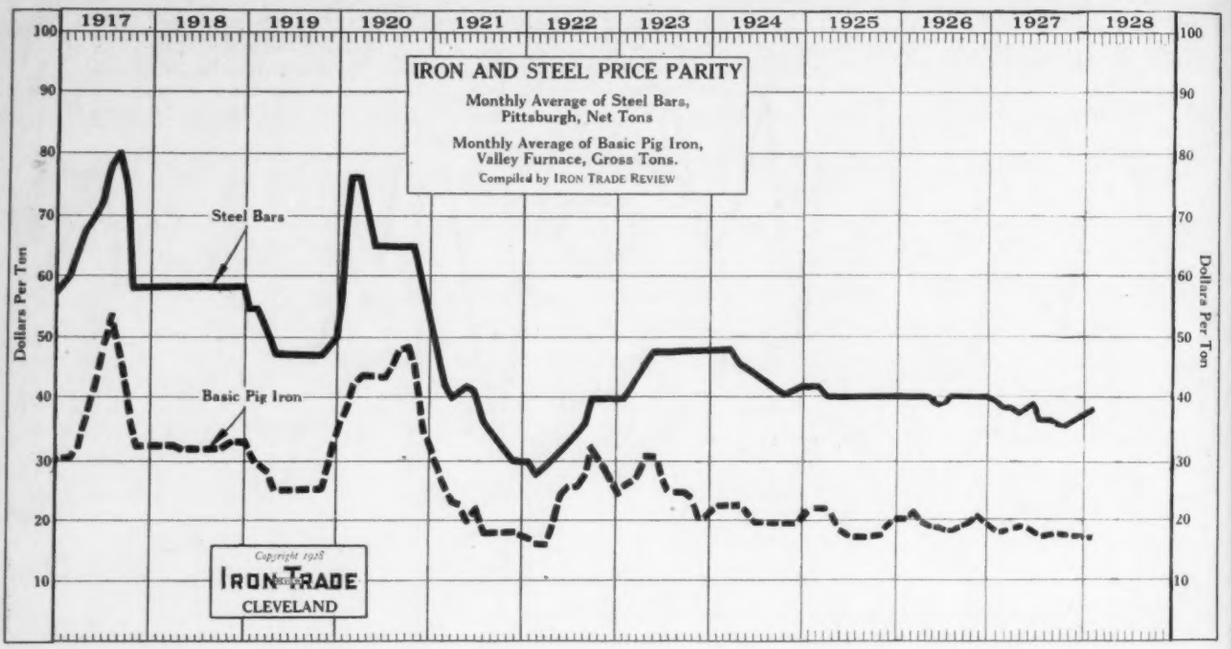
THE production of automobiles and trucks in the United States and Canada in 1927 totaled 3,573,313 units. This was a decrease of 20.6 per cent from the total of 4,503,891 cars and trucks built in the preceding year. Passenger car output suffered the sharpest reduction, dropping 21.4 per cent. The decline of trucks was 1.5 per cent. The total output for the year was the smallest since 1922 and December marked the lowest level of any month since 1922, a year of depression.

Cost of Living

THE curve of living costs has been definitely downward during the past 12 months. For December the cost of living index, computed by the National Industrial Conference Board, stood at 63.6 per cent over the 1914 level. This compared with 68.4 per cent over 1913 and 1914 recorded in December, 1926. During the year recession in retail prices has been most marked for clothing and for fuel and lighting, while rents have fallen six points during the last year.



The Business Trend

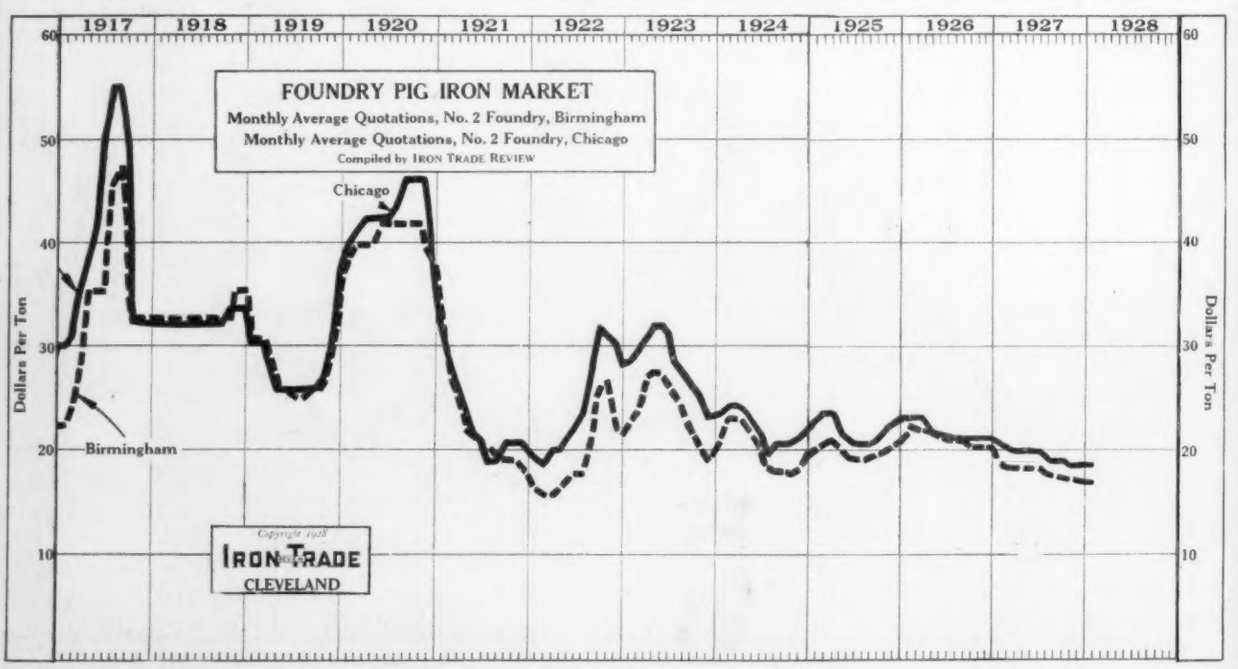

IRON AND STEEL PRICE PARITY
Monthly Average of Steel Bars, Pittsburgh, Net Tons
Monthly Average of Basic Pig Iron, Valley Furnace, Gross Tons.
Compiled by IRON TRADE REVIEW
Steel Bars
Basic Pig Iron
Dollars Per Ton
1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928
Copyright 1928
IRON TRADE
CLEVELAND

Steel Price Parity

DURING the first month of the year the spread between finished steel prices and basic pig iron prices was slightly increased. In December steel bar quotations at Pittsburgh stood at $36.00 a ton while that of basic pig iron was $17.00 a ton. January pig iron continued at $17.00 a ton while steel bar prices were advanced to $37.00 a ton. The spread of $20.00 a ton compares with a spread of $20.50 per ton one year ago, when bars were selling at $39.00 a ton and basic pig iron at $18.50.

Foundry Pig Iron

JANUARY brought no improvement in the foundry pig iron market. No. 2 foundry Chicago was quoted at $18.50 per ton, unchanged from the preceding month and comparing with $20.00 per ton in January, 1927. Southern No. 2 Birmingham continued to be quoted at $16.00 per ton also unchanged from December and comparing with $18.50 per ton in January, 1927. The spread between northern and southern iron is $2.50 per ton compared with $1.50 per ton one year ago.


FOUNDRY PIG IRON MARKET
Monthly Average Quotations, No. 2 Foundry, Birmingham
Monthly Average Quotations, No. 2 Foundry, Chicago
Compiled by IRON TRADE REVIEW
Chicago
Birmingham
Dollars Per Ton
1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928
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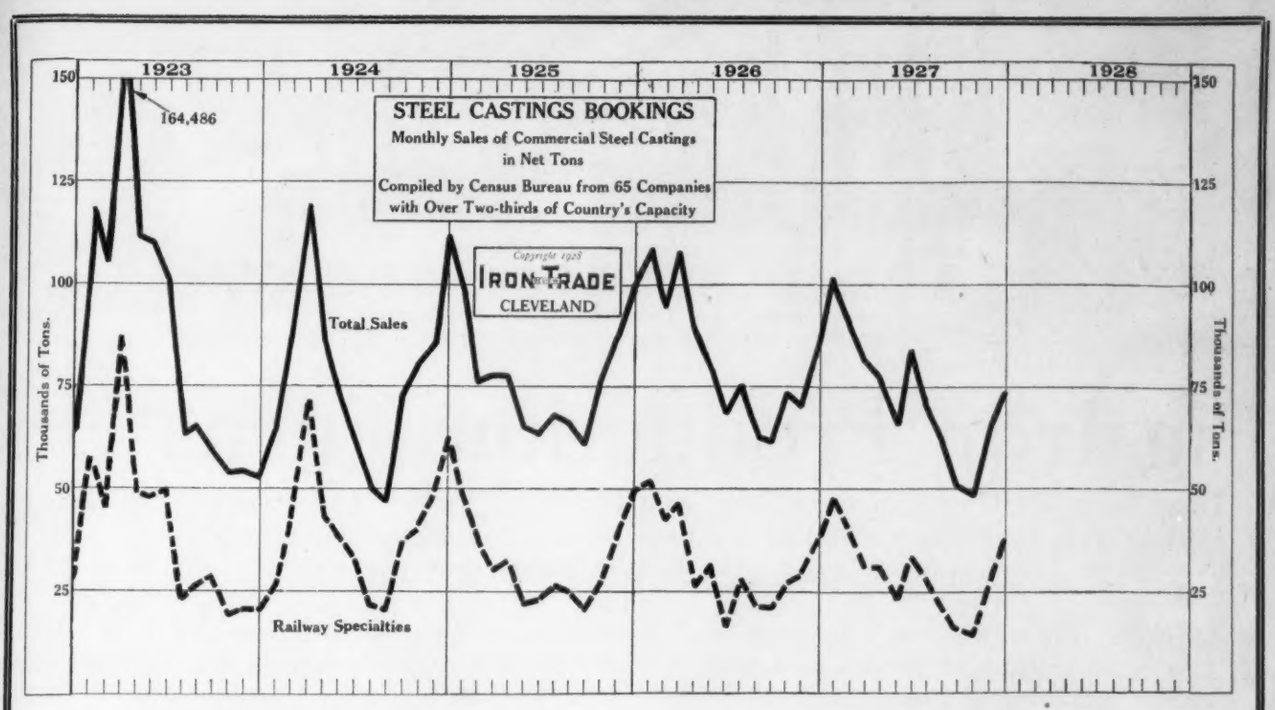
CLEVELAND

The Business Trend

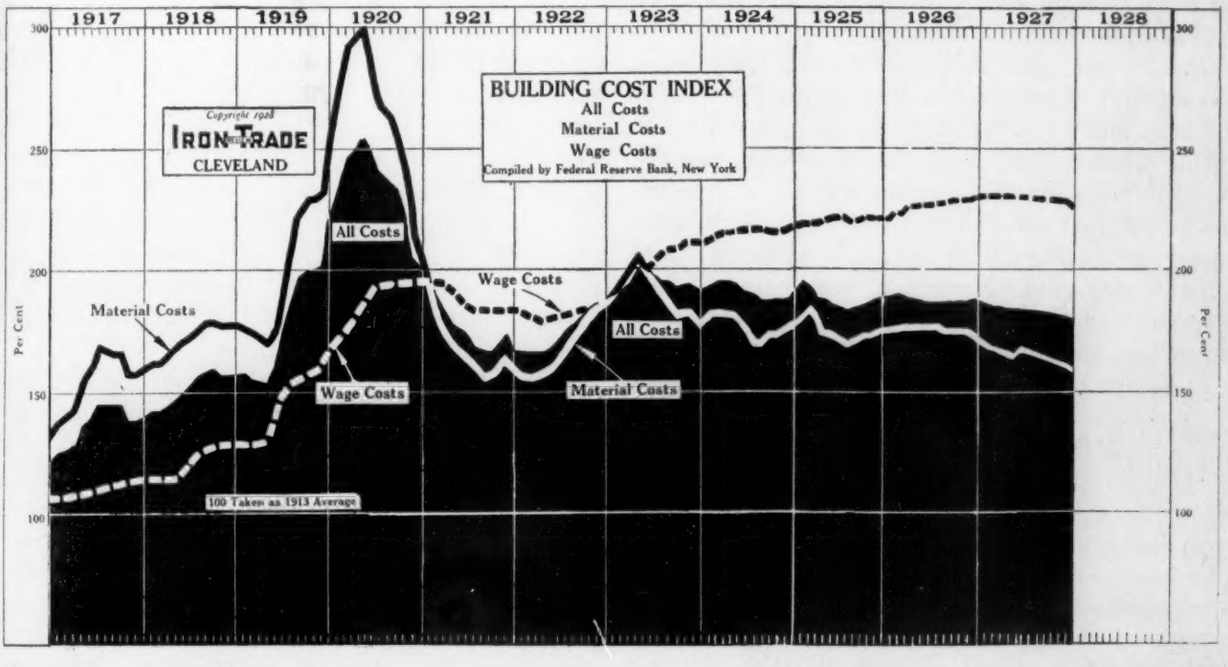


Steel Castings

IMPROVED purchases by the railroads brought an increase in bookings for steel castings in December. Total bookings for the month amounted to 74,939 tons compared with 65,634 tons in November, and the highest of any month since June. Railway specialty bookings totaled 38,266 tons compared with 27,357 tons in November and the highest of any month since last February. Bookings for the year stood at 875,146 tons compared with 996,266 tons in the preceding year.

Building Costs

THE cost of building during 1927 showed a distinct tendency downward. At the close of the year, the index of building costs computed by the New York Federal reserve bank, stood at 185. This compared with 195 in December, 1926. Average costs for the year as shown by the index were down. An interesting development was the decline in December of the index of building wages from 230 to 229. The index of building materials has fallen substantially in the last year.



Pig Iron Production Turns Up

Daily Rate Not Only Gains 4597 Tons over December but Stems Downward Tide since May—Net Gain in Active Stacks is 15—Pig Iron Shipments Heavier—Autobody Sheets Up $3—Wire Products Advanced $2

JANUARY with a pig iron total of 2,840,716 tons or an increase of 142,508 tons over December has arrested the eight month decline in production and afforded further proof of the expanding demand for iron and steel. The month's net gain of 15 active blast furnace stacks, more than recouping the loss of capacity in the entire fourth quarter, was largely made possible by increased activity at steelworks, although heavy shipments from merchant stockpiles indicate a much higher melt of iron by foundries.

In both pig iron and finished steel the trend of consumption continues up. January steel ingot output will show further improvement and the unfilled tonnage statement of the United States Steel Corp. for Jan. 31 is expected to reveal a moderate increase despite the fact contracting has been subordinated to specifying and the wave of 1928 rail buying is subsiding.

Starting the year at a considerably lower level than in 1927, production has overcome this handicap and almost registered the gain looked for at this season. Steel corporation subsidiaries are operating this week at about 85 per cent, contrasted with 83 per cent last week and 86 per cent a year ago. The industry as a whole, at just over 80 per cent, is only a few points below last year's gait. The Chicago district, again the pacemaker, is 5 per cent better than a year ago.

Steel Prices Tend Up

Several soft spots have developed, notably dragging specifications for sheets and tin plate in the Mahoning valley, but the strengthening price tendency is regarded as a corrective. All wire products save fencing have been marked up $2 per ton. Most makers of autobody sheets now ask 4.15c, Pittsburgh, an advance of $3 per ton, and are standing more firmly on black sheets at 2.90c, Pittsburgh, blue annealed at 2.10c and galvanized at 3.75c. With makers of stripsheets firmer, blue annealed may be stepped up to 2.20c. Plates, shapes and bars, recently advanced $1 per ton to 1.85c, Pittsburgh, are scheduled for a further rise late in February.

Bars Mirror Auto Needs

Steel bars are the most active of the heavy finished steel lines at both Pittsburgh and Chicago, specifications at Pittsburgh exceeding the weekly average for 1927. For this the cold bar finishers and forgers are chiefly responsible, indicating activity in the automotive industry not yet reflected in sheets and other light products. Car builders are specifying plates heavier at Chicago. Shapes are passing to fabricators at a rate that is high for the season and structural inquiry, featured by 25,000 tons for New York subways, 25,000 tons for the Chicago Civic Opera House and 20,000 tons for Santa Fe railroad bridge work, still points to an active spring.

The $2 rise in wire products, except fencing, will have no real effect until present contracts are worked off, but the new quotations are based upon plain wire at 2.50c, Pittsburgh or Cleveland, and nails at $2.65. For wire rods $44 is now asked at Pittsburgh and Cleveland and $45 at Chicago. Heavier specifications are resulting in increased wire mill operations.

Stress Iron Shipments

Demands of automotive foundries in the Detroit and Cleveland districts have brought January shipments of pig iron well over December, and February promises further expansion. Fifty cents more, or $18, furnace, is now asked for iron at Detroit. Heavy sales in the Milwaukee district marked the week at Chicago. Inquiry is moderately heavier in the New York district. Pittsburgh presents a

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Feb. 1, 1928	Jan. 1928	Nov. 1927	Feb. 1927
PIG IRON				
Bessemer, del. Pittsburgh	$19.26	19.26	19.76	20.76
Basic, valley	17.00	17.00	17.00	17.85
Basic, eastern, del. eastern Pa.	19.50	19.50	19.50	21.00
*No. 2 foundry, del. Pittsburgh	19.01	19.01	19.26	19.81
No. 2 foundry, Chicago	18.50	18.50	18.50	20.25
*Southern No. 2 Birmingham	16.00	16.00	16.50	18.00
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	20.50	20.50	21.25	22.00
**No. 2X, eastern, del. Phila.	20.76	20.51	20.51	22.26
Malleable, valley	17.25	17.25	17.50	18.10
Malleable, Chicago	18.50	18.50	18.50	20.25
Lake Superior charcoal, del Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.51	18.51	18.76	19.31
Ferromanganese, del. Pittsburgh	104.79	104.79	94.79	104.79
*1.75 to 2.25 silicon. **2.25 to 5 silicon.				
COKE				
Connellsville, furnace, ovens	2.60	2.70	2.80	3.35
Connellsville, foundry, ovens	3.75	3.75	3.75	3.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.00	34.00	36.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	34.00	35.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	34.00
Wire rods, Pittsburgh	42.00	41.50	41.00	43.50
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.85	1.80	1.75	1.90
Steel bars, Chicago	1.95	1.90	1.85	2.00
Steel bars, Philadelphia	2.17	2.12	2.07	2.22
Iron bars, Philadelphia	2.12	2.12	2.07	2.22
Iron bars, Chicago	1.90	1.90	1.85	2.00
Shapes, Pittsburgh	1.85	1.80	1.75	1.90
Shapes, Philadelphia	2.08	2.08	2.07	2.12
Shapes, Chicago	1.95	1.90	1.85	2.00
Tank plates, Pittsburgh	1.85	1.80	1.75	1.85
Tank plates, Philadelphia	2.10	2.05	2.07	2.22
Tank plates, Chicago	1.95	1.90	1.85	2.00
Sheets, black, No. 24, Pittsburgh	2.80	2.80	2.80	2.90
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.10	2.10	2.20
Sheets, gal., No. 24, Pittsburgh	3.65	3.65	3.70	3.70
Sheets, black, No. 24, Chicago	3.05	3.05	3.00	3.00
Sheets, blue anl., No. 10, Chicago	2.25	2.25	2.30	2.35
Sheets, galvanized, No. 24, Chicago	3.90	3.90	3.85	3.85
Plain wire, Pittsburgh	2.40	2.40	2.40	2.45
Wire nails, Pittsburgh	2.55	2.50	2.50	2.60
Tin plate, per base box, Pittsburgh	5.25	5.25	5.30	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	15.25	15.35	14.20	16.10
Heavy melting steel, eastern Pa.	14.00	14.00	14.00	15.00
Heavy melting steel, Chicago	12.25	12.25	11.50	13.10
No. 1 wrought, eastern Pa.	15.75	15.25	15.75	17.00
No. 1 wrought, Chicago	12.35	12.65	11.25	13.95
Rails for rolling, Chicago	15.00	15.00	13.95	16.00

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Feb. 1, 1928)	**$35.45**
Last week (January 25, 1928)	**35.45**
One month ago (January, 1928)	**35.27**
Three months ago (November, 1927)	**35.35**
One year ago (February, 1927)	**36.97**
Ten Years ago, (February, 1918)	**56.67**
Fifteen years ago (February, 1913)	**28.05**

dull market, with prices unchanged. Sales in eastern Pennsylvania mounted to 40,000 tons.

Track fastening sales have been brisk at Chicago, reaching 25,000 tons in the past week. Rail inquiry at Chicago totals 75,000 tons. The Pennsylvania railroad has set a new high record for passenger coach purchases by placing 613. The St. Louis-San Francisco has broadened its car inquiry to include 4500. The Norfolk & Western, in addition to ordering 250 gondolas, will have 1000 hopper cars repaired. The Chesapeake & Ohio has awarded 500 gondolas.

January pig iron output of 2,840,716 tons compares with 2,698,208 tons in December. It is the best monthly total since last August but falls about 8 per cent short of the 3,101,346 tons of January, 1927. The January daily rate of 91,636 is the highest since September, comparing with 87,039 tons in December and 100,043 tons last January. At the close of January 184 stacks, or 15 more than at the end of December, were in blast. Not since the last of August, when 189 stacks were active, have so many been in.

The IRON TRADE REVIEW composite of 14 leading iron and steel products is unchanged this week at $35.45.

Late News Flashes

Light Hamilton Furnace in April

Cincinnati, Jan. 31.—The rebuilt Hamilton furnace, owned by the Koppers Co. and the American Rolling Mill Co., will be put in operation about April 15, after being cold since 1923.

Colonial Stack Goes Out in April

New York, Jan. 31.—The Colonial Iron Co. expects to blow out its furnace at Riddlesburg, Pa., for relining about April 1.

Valley Operations Dip Slightly

Youngstown, O., Jan. 31.—Due to irregular sheet mill operations and some lagging in demand for wrought pipe, steelworks operations have fallen slightly below last week. This is believed seasonal and temporary. Independent open hearths active this week are 37 out of 53, while 96 out of 127 independent sheet units are active against 104 last week. Nine pipe units are active out of 18, with one seamless unit going.

Another Chicago Steelworks Stack Lighted

Chicago, Jan. 31.—Another steelworks blast furnace is being put in operation this week by the leading interest at its Gary works, making nine operating there, eight at South Chicago and one at Joliet. Inland Steel Co. has all of its four furnaces operating, Youngstown Sheet & Tube Co. has two at its Indiana Harbor works, and Wisconsin Steel Co. has all its three furnaces active. Twenty-seven of the 36 steelworks furnaces here are active. This makes operations for the district above 85 per cent. The furnace blown in this week is the sixth to be lighted since the first of the year in the district.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30 to 39.30
Chicago	33.00
Forging, Pittsburgh	39.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh, Youngstown	$34.00
Cleveland	33.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh, Cleveland	$42.00 to 44.00
Chicago	43.00 to 45.00

SKELP

All grades, Pittsburgh	1.85c

Standard Structural Shapes

Pittsburgh	1.85c
Philadelphia, del.	2.13c
New York, del.	2.14c
Chicago	1.95c
Cleveland, del.	2.04c
Buffalo	1.95c
Bethlehem	2.00c
Birmingham	2.00c
Pacific coast, c.i.f.	2.35c

Steel Plates

Pittsburgh	1.85c
Philadelphia, del	2.10c
New York, del.	2.175c
Chicago	1.95c
Cleveland	2.04c
Buffalo	1.95c
Coatesville, Sparrows Point	2.00c
Birmingham	2.00c
Pacific coast, c.i.f.	2.25c

Iron and Steel Bars

Pittsburgh, soft steel	1.85c
Pittsburgh, cold finishing	2.00c
Pittsburgh, forging quality	2.10c
Philadelphia, soft steel	2.17c
New York, soft steel	2.19c
Chicago, soft steel	1.95c
Cleveland, soft steel, mill	1.85c
Cleveland, soft steel, del.	1.87½ and 2.04c
Birmingham, soft steel	2.00c
Buffalo	1.95c
San Francisco, soft steel	2.35c
Pittsburgh, refined iron	2.75c to 4.25c
Pittsburgh, reinforcing billet	1.85c to 1.90c
Chicago, reinforcing billet	2.30c to 2.75c
Chicago, reinforc. rail steel	1.85c to 1.95c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.80c to 1.85c
Rail steel, mill	1.65c to 1.75c
Philadelphia, common iron	2.07c to 2.22c
New York, common iron	2.09c to 2.24c
Chicago, common iron	1.90c

Hoops, Bands, Strips

Hoops, Pitts., 6-in. and under	2.10c to 2.20c
Bands, Pitts., 6-in. and under	2.10c to 2.20c
Bands, Pittsburgh, over 6 in.	1.85c to 2.00c
Hot rolled strip, Pitts., stamping quality, over 6-in.	1.85c to 1.90c
Hot rolled strip steel, Chicago	2.10c to 2.40c
Bands, Chicago, under 6-in.	2.20c to 2.40c
Bands, Chicago, 6-in. and over	2.10c to 2.20c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pittsburgh, Cleveland (less than 3 tons)	3.00c to 3.15c
Worcester, Mass.	3.15c to 3.40c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., e.l.	2.20c
Shafting (turned, polished) Pitts.	2.20c
Shafting (turned, ground) mill (Depending on size, 1⅞ to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.20c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. mills	2.80c
Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.20c to 2.25c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Chicago

To Tonnage Users in Auto. Industry

S.A.E. Series Number	100 lbs. Bars
2100 (*½ per cent Ni. 0.10 to 0.20 per cent C)	$ 2.90 to 3.00
2300 (3½ per cent nickel)	4.00 to 4.10
2500 (5 per cent nickel)	5.00 to 5.10
3100 (Nickel chromium)	3.00 to 3.10
3200 (Nickel chromium)	4.50 to 4.75
4100 (Chromium molybdenum)	3.00 to 3.10
4100 (Cr. Mo. 0.25-0.40)	3.90 to 4.05
4615 (Ni. 1.50%; Mo. 0.10-0.20)	4.15 to 4.30
5100 (Chromium steel)	3.00 to 3.10
6100 (Cr. V., forging)	4.00 to 4.10
6100 (Cr. V., spring)	3.50 to 3.75
9200 (Silico Mang., spring steel)	3.00 to 3.20
9250 (Silico Mang., spring steel)	3.00 to 3.10
Ni. Cr. V. (Ni. 1½%, Cr. 1%, V. 0.15%)	4.00 to 4.10

*Mill number not formally accepted by S. A. E.

Hot rolled alloy billets 4 x 4-inch and over take the same prices per gross tons as same specification of alloy bars per net ton. Sizes from 4 x 4-inch down to 2½ x 2½-inch take same basis plus $5 a ton extra. Billets smaller than 2½ x 2½-inch take bar price on net ton basis.

Cold Rolled

Cold rolled alloy steels take 1.00c a pound extra over hot rolled when mean carbon is 0.30 or under. When the carbon is above 0.30 the extra for cold rolled is 1.75c, including annealing.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.80c to 2.90c
No. 24, Philadelphia, delivered	3.22c
No. 24, Gary, Indiana Harbor	3.00c
No. 24, Chicago, delivered	3.05c
No. 24, Birmingham, base	3.05c

TIN MILL, BLACK

No. 28, Pittsburgh	2.90c to 3.00c
No. 28, Gary, base	3.00c to 3.10c

GALVANIZED

No. 24, Pittsburgh base	3.65c to 3.75c
No. 24, Philadelphia, delivered	4.07c
No. 24, Gary, Indiana Harbor	3.85c
No. 24, Chicago, delivered	3.90c
No. 24, Birmingham, base	3.90c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c to 2.10c
No. 10, Philadelphia, delivered	2.42c
No. 10, Gary, Indiana Harbor	2.20c to 2.30c
No. 10, Chicago, delivered	2.25c to 2.35c
No. 10, Birmingham base	2.30c

*Plus 10 cents for 40 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh base	4.00c

IRON

No. 10, Pitts., blue ann., c.l.,	2.80c
No. 24, Pitts., box annealed, 1-pass cold rolled, carload	3.75c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.10c

*Prices subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra f.o.b. Cleveland and Pittsburgh base.

Bright plain wire, No. 9 gage	2.40c to 2.50c
Annealed fence wire	2.55c to 2.65c
Galvanized wire, No. 9 gage	3.00c to 3.10c
Barbed wire, painted	3.00c to 3.10c
Barbed wire, galvanized	3.25c to 3.35c

	Per 100 lbs.
Wire nails	$2.55 to 2.65
Galvanized nails	4.55 to 4.65
Polished staples	3.00 to 3.10
Galvanized staples	3.25 to 3.35
Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra, base	2.55 to 2.65
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts. 60 to 90 lb.	27.00 to 30.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.75c to 2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., stand	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	2.25c

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.

*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 and 5 per cent; on galvanized by 1½ points with a supplementary 5 per cent.

Boiler Tubes

Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	46

Further discounts of five to seven 5 per cent for carloads on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal from one 10 per cent to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm	$28.00 to 30.00
Four-inch, Birmingham	32.00 to 34.00
Four-inch, Chicago	40.20 to 42.20
Six-inch to 24-inch, Chicago	36.20 to 38.20
Four-inch, New York	40.25 to 41.60
Six-inch and over, New York	36.75 to 37.75
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927. Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	70 off

MACHINE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	70 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off
Stove bolts, 80-10-5 off in packages; 80-10-5 with 2½ off in bulk.	
Tire bolts	60-5 off

NUTS

Semifinished	70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Struct., c.l., Pitts.-Cleve.	2.75c
Structural rivets, c.l., Chicago	2.85c

**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland and Chicago 70 and 10 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c.l., Pitts. dist.	$6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Lock washers (dealers)	85-5 off
Lock washers (consumers)	85 off

Pig Iron

Month's Shipments Exceed December's —Continuing to Mount—Buying Slows Down, with Some Inquiries Still Uncovered

SHIPMENTS continue as the brightest feature of the pig iron situation. January shipments surpassed those of December, and were equal to or better than the volume in January 1927, leading makers report. Moreover, merchant furnaces say early February shipments will show an improvement over those in the like period last month. Steelworks are busier, consuming their own pig iron, thus tending to stiffen the price, though no definite change has resulted as yet. Inquiries are beginning to appear in larger numbers for second quarter, and furnaces interests at Chicago and Cleveland have booked substantial orders for that period. Spot buying also is active . Business in eastern territory shows more activity. Inquiries have been issued by some of the leading consumers.

PITTSBURGH, Jan. 31.—The pig iron market here is devoid of inquiries and sales activity. The Pressed Steel Car Co.'s recent purchase of a round tonnage was the last sale of any size noted. Jobbing foundries are getting slightly busier, and their specifications are improving. Steel companies are operating at a better rate, using more of their own iron, thus withdrawing supplies from the merchant market. However, $17.25, base, valley, still is available. Malleable also is quoted at $17.25. A few small lots are sold from time to time at this price. Basic is firm at $17 and bessemer $17.75, valley. These prices are close to the indicated average for January. One furnace sold 150 tons of bessemer iron over the entire week. The National Sanitary Co., Salem, O., sustained a fire loss Sunday night, estimated at $250,000 to $500,000, and one valley pig iron shipper is consequently deprived of an outlet for a fairly large tonnage.

Boston, Jan. 31.—Buffalo pig iron is firm at $17, base, and a little better activity has developed. Inquiry generally is reported better. With production down, the market looks better for higher prices. Some buying is extending into second quarter.

New York, Jan. 31.—Pig iron demand shows some improvement. Stanley Works is in the market for 3000 to 5000 tons of basic iron for Bridgeport, Conn.; Eastern Malleable Iron Co. for 2500 to 3000 tons of malleable for various plants; Thatcher Furnace Co. for 1500 tons of No. 2 plain iron for Garwood, N. J., and 1000 tons of No. 2X for Newark, N. J. An unusual inquiry is from the Eagle Iron & Brass Co., Passaic, N. J., and its associated company, W. P. Latham & Co., Paterson, N. J., for 3000 to 5000 tons of 3.25 to 3.75 silicon foundry iron over 1928. Sales the past week aggregated about 4000 tons. Eastern Pennsylvania foundry iron is firm at $19.50, base, furnace. Some sales of Buffalo foundry iron are noted at $17, base, Buffalo, though it is understood $17 is shaded in a few instances. Eastern New York state foundry is around $18, base, furnace, plus silicon differentials. Indian iron usually brings $21.50, base, duty paid tidewater. Dutch iron, usually high silicon, is $21.50 to $22, duty paid.

The Debevoise-Anderson Co., is selling stock iron which the Hudson Valley Coke & Products Corp. has at its furnace at Troy, N. Y.

This connection is understood to be a temporary one, covering a period of about two months during which M. L. Mozier, manager of pig iron sales for Hudson Valley Coke & Products Corp., is on leave of absence.

Buffalo, Jan. 31.—Pig iron sales and inquiries continue restricted in volume. The melt has increased and sellers predict a slow but steady improvement in demand. One Buffalo steelworks furnace which has been banked is again producing iron, restoring operation to a total of 12 of 21 furnaces. Foundry iron is firm, but there has been some shading of the $17.50 base on malleable in eastern territory.

Cleveland, Jan. 31.—Shipments of pig iron in January exceeded the total for December. One large producer reports the January figure also was larger than that of January, 1927, while another merchant producer says the two Januarys were equal. Continuing high rates of shipments are the brightest feature of the market. Sales in the past week reported by furnace interests with headquarters in Cleveland totaled 23,000 tons. Michigan, Indiana and Ohio business is the most active. An Indiana melter divided 2000 tons among four furnace interests. Sales generally are of small-lot character; representing intensive buying on a hand-to-mouth basis. The Indiana sale was for second quarter. Inquiries for that period are light. An Ohio melter is asking for prices on 1500 tons for the last half, some makers declining to quote. The most recent test showed the lake furnace price firm at $17, base, for delivery in Indiana. Cleveland furnaces dip to $16.50, base, furnace, in competitive territory although $16.75 is the more general quotation, and efforts are being made to establish $17 as minimum. The lake furnace price for Michigan delivery is steadier at $18, base, after recent sales at $17.50. Cleveland furnaces continue to quote $18, base, furnace for local delivery.

Detroit, Jan. 31.—Pig iron is quoted 50 cents higher, or $18 to $18.50, base, furnace. Considering the heavy selling late in December and early in January, new business is large. Shipments show a good increase over the rate of the fourth quarter, convincing producers that a good first quarter is assured and a good first half is probable. Practically all of the improvement is attributable to the automotive industry as steel, radiator and other foundries are slow. Furnace stocks are no more comfortable. The largest current inquiry is for 1000 tons of foundry iron for a Canadian melter.

Cincinnati, Jan. 31.—Some expansion of small orders for pig iron is

(*Concluded from Page* 359)

Pig Iron Prices

Per gross ton

Bessemer, valley furnace	$17.50
Bessemer, del. Pittsburgh	19.26
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.76
Basic, Buffalo furnace	16.50 to 17.00
Basic, del., eastern Pa.	19.25 to 19.75
Malleable, valley furnace	17.25
Malleable, del. Pittsburgh	19.01
Malleable, del. Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa.	20.00 to 21.00
No. 1 foundry, Chicago furnace	19.00
No. 1X, eastern del., Phila.	21.26
No. 1X, Buffalo furnace	18.00 to 18.50
No. 2 foundry, valley furnace	17.25
No. 2 foundry, del., Pittsburgh	19.01
No.2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.50
No. 2 foundry, del. Phila	20.26
No. 2 Virginia furnace	20.00 to 20.50
No. 2 foundry, N. J., tidewater	19.78 to 21.26
No. 2 foundry, east N. Y. fur.	18.00 to 20.50
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del. Cincinnati	19.69
No. 2 Tenn., Birmingham base	16.00
No. 2 Tenn., del., Cincinnati	19.69
No. 2 Alabama, del. Philadelphia	22.01
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago, river-rail	20.18
No. 2 Ala., del. Boston, rail-water	22.91 to 24.77
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X, east. N. J., tidewater	20.28 to 21.76
No. 2X, eastern, del. Phila.	20.76
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	23.15 to 23.65
No. 2X, Virginia furnace	20.50 to 21.00
No. 2X, Virginia, del. Phila.	25.04 to 25.54
No. 2X, Virginia, del. Jersey City	25.37 to 25.87
No. 2X, Virginia, del. Boston	25.71 to 26.21
Gray forge, val., del., Pittsburgh	18.51
Low phos., standard, valley	27.00
Low phos., standard, Phila	24.76 to 27.79
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron, Jackson county (Ohio) furnace, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

Coke

Foundry Demand Broadens, Furnace and Heating Grades Dull—Prices at Low Ebb

DEMAND for foundry coke continues to expand in accordance with the improved rate of melt, but other grades are dull. Warm weather is holding down orders for heating coke, while furnaces are covered for the remainder of the first quarter. Prices of Connellsville furnace fuel have failed to move up from the low levels reached a week ago.

Pittsburgh, Jan. 31.—Coke demand has failed to expand and prices continue weak. One or two blast furnaces recently buying extra supplies of 15 carloads at a time at $2.60, for emergency purposes, will take no more even if offered that figure. Smaller lots for nonmetallurgical purposes brought $2.65, while single carloads have been sold at $2.75. Contracts expiring March 31 will not come up for renewal until late in February, and shippers contemplate asking $3 for second quarter. Heating coke is $2.50 with less for first and second drawings. Foundries are specifying more freely on contracts, but spot buying is lacking. Prices range from $3.75 to $5.35, including premium brands. The usual figures are $4 or $4.25. Some off-grade coke is offered below $3.75.

Production of coke in the Connellsville region in the week ended Jan. 21 was 46,220 tons, compared with 47,300 tons in the preceding week, according to the *Connellsville Courier*.

Boston, Jan. 31.—Coke prices are firm. Shipments are fair. One or two consuming lines show a slight improvement in demand.

New York, Jan. 31.—Furnace coke is somewhat firmer, at $3, Connellsville. The foundry coke market continues easy. Specifications on contracts are at a reduced rate. Spot foundry coke continues $3.75 to $4, Connellsville, for ordinary brands.

Cincinnati, Jan. 31.—The outlook for coke is much better. By-product interests report considerable new specifications since notice was given that prices will not be changed for February. Foundry demand shows continued improvement.

St. Louis, Jan. 31.—Improvement in the melt has resulted in slightly better demand for metallurgical coke. Shipments are holding up well. By-product interests are operating at about capacity. Their reserve stocks are considerably larger than last year. Receipts of foundry coke from southern and eastern markets are negligible.

Birmingham, Ala., Jan. 31.—Coke contracts are fairly good. The foundry grade still is $5.

Coke Prices

Beehive Ovens

Prices per Net Ton

Connellsville furnace	$2.60 to 2.75
Connellsville foundry	3.75 to 4.25
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county, foundry	5.00
Wise county, furnace	4.50
Alabama foundry	5.00

By-Product

Foundry, Newark, N. J., del.	9.00 to 9.40
Foundry, Chicago, ovens	9.00
Foundry, New England, del.	11.50
Foundry, St. Louis	9.75
Foundry, Birmingham	5.00
Foundry, Indianapolis, del.	9.75
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.50
Foundry, Detroit, ovens	9.00
Foundry, Buffalo, ovens	9.00

Ferroalloys

Spot Ferrosilicon Prices Advanced—Consumption Increasing

New York, Jan. 31.—Spot prices of 50 per cent ferrosilicon have been established at $5 a ton above contract prices. The spot quotation on 75 per cent ferrosilicon now is $10 above the contract figure. Special ferroalloys are moving in good volume on contracts. Prices are unchanged. Tungsten is quiet and unchanged.

Pittsburgh, Jan. 31.—Ferroalloy consumption is increasing, although specifications have not improved much. Most users of ferromanganese carried over fairly large stocks. A few in this and nearby districts have anticipated increased needs and have furnished specifications on $100 contracts. Some sellers of imported ferromanganese in an effort to inspire additional buying have indicated the price will soon advance. No such information has come from domestic producers. Spiegeleisen producers report a number of customers are anticipating quotas. If this trend continues a shortage of material is probable. Shipments are going out against contracts at $30 to $32.

Chicago, Jan. 31.—Spiegeleisen is strong at $32 for carloads. Practically all ferromanganese contracts have been closed.

Cleveland, Jan. 31. — Specifications for ferroalloys are fair. Consumers' requirements have been covered and consequently little buying activity is reported. Prices are firm with ferromangansee $100 and spiegeleisen $32. Some talk is heard of a $5 advance in ferromanganese being in prospect but such talk is chiefly rumor.

Steelmaking Creeps Up at Pittsburgh

Pittsburgh, Jan. 31.—With a two or three-point gain over a week ago, about 78 per cent is the general average operating rate among steel mills here. Carnegie Steel Co. is on an 80 per cent basis, and the Jones & Laughlin Steel Corp. 75 to 80. A smaller independent has put on another open hearth, giving it nine out of 12 active. An additional open hearth at Butler has gone on the active list, giving the maker there six out of ten. Another nearby plant, which recently reduced from eight to seven out of 12, has gone back to eight. At Weirton only one open-hearth furnace is inactive, which is considered practically 100 per cent.

Carnegie Steel Co. put on six blast furnaces in January, giving it 30 out of 51 active. The six going on, with their dates of blowing, are as follows: Edgar Thomson "F," Jan. 13, "J," Jan. 25; Duquesne No. 2, Jan. 24; Carrie No. 4, Jan. 4; and No. 3, Jan. 16; Ohio No. 4, Jan. 5, and No. 1, Jan. 13, and Farrell No. 3, Jan. 23.

Truscon Plans Plant in Belgium

Youngstown, O., Jan. 31.—Truscon Steel Co. is planning to build a plant in Europe, probably Belgium, for the manufacture of its products at low labor cost. Output of this plant will be shipped to Asia, Australia and Africa. Julius Kahn, president, has returned from a trip to Europe, looking over conditions. Announcement of intention to build followed his return.

Fluorspar Price Easy

Chicago, Jan. 31. — Fluorspar is weaker, attractive tonnages now going at $14.50. The contract price is $15, for the 85 and 5 per cent grade.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$100.00
Ferromanganese, del. Pittsburgh	104.79
Spiegeleisen, 19 to 21 per cent domestic furnace	32.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do, less carload	88.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Ferrotungsten stand. lb. cont.	93.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*Spot Prices $5 higher.

The Market Section

Plates

Specifications Good—Some Fair Size Awards Made—Shipments Continue on Former Price Basis

PLATE specifications continue in good volume, while new buying is light. Awards include 3350 tons for four carfloats for the New York Central, 5000 tons for West Texas oil tanks, and miscellaneous lots for car building. Inquiries include 2000 tons for oil tanks, while new figures are being taken on 3000 tons for lighters and scows for the New York Central.

PLATE PRICES, PAGE 344

Pittsburgh, Jan. 31.—Miscellaneous work is calling for large tonnages of plates. Fabricators are specifying regularly on contracts taken below the present open market price of 1.85c, which went in effect Jan. 19. The largest job involves 3350 tons for four carfloats for the New York Central railroad, awarded the Dravo Contracting Co. The remainder of the New York Central inquiry, 10 lighters and five deck scows, involving another 3000 tons, is being refigured. An inquiry for five 80,000-barrel tanks taking 2000 tons is for southwestern installation. Smaller amounts are involved in lock gates for the Ohio river, wharf barges and towboats. The 1.85c price does not apply beyond April 1, books not yet having been opened for second quarter.

New York, Jan. 31.—Heavy business in plates has been done in the past week. This was comprised of commitments at old prices accepted prior to the advance. The market on plates now is 2.00c, base, Coatsville, equivalent to 2.175c, delivered, New York. On account of the heavy ordering at the former price of 1.95c, Coatesville, the new figure has not yet received a test. It is considered unlikely that there will be much new business in the next two weeks. A new inquiry now before the trade involves 1200 tons of tank work for Pan-American Petroleum Co.

Cleveland, Jan. 31.—Sales of parts have not been heavy since mills advanced to 1.85c, Pittsburgh, but consumption shows no drag. Inquiries for special sections continue heavy. Great Lakes shipyards are fair buyers for repair work.

Chicago, Jan. 31.—Specifications for plates from car building shops continue good. These specifications were not far behind those of a week ago when the total tonnage specified by car shops was 8000 to 8500 tons of plates, shapes and bars. About 5500 tons of oil tank plates were booked for West Texas fields, and about 2000 tons are on inquiry. The oil tank outlook is uncertain. Specifications are coming in heavily on 1.90c contracts, and a few sales are reported at 1.95c, Chicago.

Philadelphia, Jan. 31.—Heavy plate business here has accompanied the recent advance to 2.00c, base, Coatesville. Most users now are protected to the end of the quarter at the old price. Baldwin Locomotive Works has booked eight locomotives for Siam.

CONTRACTS PLACED

3350 tons, four car floats 270 feet long for New York Central railroad, to Dravo Contracting Co.

500 tons, one diesel engine towboat for Inland Waterways Corp., $175,877.65 low bid, to Charleston Dry Dock & Machine Co.

325 tons, one steel wharf boat 6¼ x 45 x 214 feet with cabin 12 x 38.10 x 193 feet, for unstated buyer, to St. Louis Structural Steel Co.

CONTRACTS PENDING

3000 tons, ten steel deck lighters and five steel deck scows for New York Central railroad; to be refigured.

2000 tons, five 80,000-barrel tanks for unidentified oil tank buyer in southwest; bids being tabulated.

500 tons, lock gates for dam No. 51 Ohio river; bids being tabulated.

200 tons, one steel wharf barge 6 x 45 x 214 feet for United States Engineers, Memphis, Tenn.; bids close Feb. 7.

Sustains Sheet Bar Rate

Washington, Jan. 31.—Rates on sheet bars, in carloads, from Newport and Andrews, Ky., to Indianapolis, have not been found unreasonable in a decision rendered by the interstate commerce commission in the case of the former Chapman-Price Steel Co. against the Baltimore & Ohio railroad. The complaint has been dismissed.

Automotive Exports Big

Washington, Jan. 31.—Exports of automotive products in the first eleven months of 1927 were valued at $377,458,512, indicating a 1927 total in excess of $400,000,000. Imports of automotive products in November totaled $282,467, the department of commerce states.

Semifinished

Users Taking Larger Tonnages —Some Ordering Farther Ahead —Wire Rods Advanced $2

SPECIFICATIONS for sheet bars, billets and slabs are more active, and some makers of strip sheets are placing new orders farther ahead. One buyer has contracted for three months, and another for two months. Prices are steady, the reduction to $33, Cleveland, on sheet bars, not having affected the general market. Wire rods advanced $2 to $44, Pittsburgh, and $45, Chicago.

SEMIFINISHED STEEL PRICES, PAGE 344

Pittsburgh, Jan. 31.—The last half of January was far more active for semifinished steel specifications than the first. Business has improved among strip steel and sheet producers generally. One strip steel manufacturer closed for an entire quarter's supply of semifinished material. Another bought for two months. Few users now come into the market for competitive bids. Prices are firmer than in a long time, with prospects of early advances. Rerolling billets, 4 x 4-inch, are firm at $33, as are 2 x 8-inch slabs. Smaller billets are the same price as sheet bars, $34. Forging billets are slightly more active at $38. Some forge companies promise early specifications on a more attractive basis than for several weeks. Real expansion in forging billets awaits improvement in the oil industry. Wire rods advanced last Thursday $2 to $44, although no sales have been noted at the new figure. Skelp is 1.85c, with some material going out on contracts to buyers at lower levels.

Cleveland, Jan. 31.—Demand for sheet bars, billets and slabs is slightly better, as shown by specifications. The leading merchant producer here is operating at about 80 per cent. Prices are steady, at $33, Cleveland, for sheet bars, billets and slabs.

Chicago, Jan. 31.—Specifications for semifinished steel are active. Billets, 4 x 4-inch, are steady at $33, Chicago. In line with the advance of $2 a ton on wire products, wire rods have been advanced from $43 to $45, Chicago.

Youngstown, O., Jan. 31.—Sales of sheet bars have picked up. Sheet bars are being shipped more widely on specifications that call for payment at $34, Pittsburgh or Youngstown. Billets and slabs are somewhat slower, and the price holds at $33. All makers of wire rods have advanced $2, to $44, Pittsburgh.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons Delivered to Consumers

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.65 to 10.75
Boston (dealers)	9.00 to 9.25
Buffalo, No. 1	15.00 to 15.50
Buffalo, No. 2	13.75 to 14.25
Chicago	12.25 to 12.75
Cincinnati (dealers)	12.00 to 12.50
Cleveland, No. 1	13.75 to 14.00
Cleveland, No. 2	13.25 to 13.50
Detroit, No. 1	11.25 to 11.75
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	11.00 to 11.50
Bethlehem delivery	13.00 to 13.50
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	7.00 to 7.50
Pittsburgh, No. 1	15.25 to 15.50
St. Louis	12.25 to 12.75
Valleys, No. 1	15.00 to 15.50

COMPRESSED SHEETS

Buffalo	11.50 to 12.00
Chicago	11.00 to 11.50
Cleveland	12.50 to 13.00
Detroit	10.25 to 10.75
Pittsburgh	14.25 to 14.75
Valleys	14.25 to 14.50

BUNDLED SHEETS

Buffalo	8.75 to 9.25
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pennsylvania	10.50 to 11.00
Pittsburgh	13.25 to 13.75
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	9.25 to 9.75
Detroit	7.50 to 8.00
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	11.50 to 12.00
Buffalo	16.25 to 16.75
Chicago	15.00 to 16.00
Cincinnati (dealers)	16.00 to 16.50
Detroit	11.00 to 11.50
St. Louis	16.00 to 16.50

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	11.00
Buffalo	12.75 to 13.25
Chicago (net)	12.00 to 12.50
Cincinnati (dealers) net	9.50 to 10.00
Cleveland	12.00 to 12.50
Detroit (net tons)	10.50 to 11.00
Eastern Pennsylvania	12.50 to 13.00
New York (dealers) (mill)	8.25 to 8.50
Pittsburgh	12.50 to 12.75
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.50 to 17.00
Cincinnati (dealers)	13.00 to 13.50
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	18.50 to 19.00
Cleveland, billet, bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	12.25 to 12.75
Pittsburgh	11.00 to 11.50
St. Louis	12.25 to 12.75

KNUCKLES, COUPLERS, SPRINGS

Chicago	14.50 to 15.00
Eastern Pennsylvania	16.00 to 16.50
Pittsburgh	16.50 to 17.00
St. Louis	14.25 to 14 75
Buffalo	16.00 to 16.50

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
St. Louis	14.25 to 14.75

ANGLE BARS—STEEL

Buffalo	14.50 to 15.00
Chicago	14.50 to 15.00
St. Louis, No. 2	14.00 to 14.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	10.00 to 10.50
Buffalo, No. 1	12.25 to 12.75
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	12.35 to 12.90
Chicago, No. 2	12.25 to 12.75
Cincinnati, No. 1 (dealers)	11.50 to 12.00
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	15.00 to 15.50
New York, No. 1 (dealers)	11.00 to 11.50
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	15.25 to 15.50
St. Louis, No. 1	10.25 to 10.75
St. Louis, No. 2	12.25 to 12.75

WROUGHT PIPE

Boston (dealers)	8.00 to 8.50
Eastern Pennsylvania	13.00 to 13.50
Buffalo	12.00 to 12.50
New York (dealers)	8.75 to 9.25

YARD WROUGHT

Boston	8.75 to 9.00
Eastern Pennsylvania	14.50 to 15.00

BUSHELING

Buffalo	12.00 to 12.50
Chicago, No. 1	10.50 to 11.00
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	7.00 to 7.50
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	10.25 to 10.75

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	6.00 to 6.25
Buffalo	9.50 to 10.00
Chicago	8.00 to 8.50
Cincinnati (dealers)	8.75 to 9.25
Cleveland	9.00 to 9.25
Detroit	7.25 to 7.50
Eastern Pennsylvania	11.00 to 11.25
New York (dealers)	7.00 to 7.50
Pittsburgh	10.00 to 10.50
St. Louis	7.50 to 8.00

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham plain	8.00 to 9.00
Boston (chemical)	9.50 to 10.00
Boston (dealers)	6.50 to 7.50
Buffalo	10.25 to 10.75
Chicago	10.25 to 10.75
Cincinnati (dealers)	9.00 to 9.50
Cleveland	10.50 to 10.75
Detroit	8.25 to 8.50
Eastern Pennsylvania	11.00
Eastern Pennsylvania (chem.)	15.00 to 15.50
New York (dealers)	6.75 to 7.35
Pittsburgh	11.00 to 11.50
St. Louis	9.25 to 9.75
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	6.00 to 6.25
Buffalo	10.25 to 10.75
Cincinnati (dealers)	8.75 to 9.25
Cleveland	10.50 to 10.75
Detroit	8.25 to 8.50
Eastern Pennsylvania	10.00 to 11.00
New York (dealers)	6.75 to 7.35
Pittsburgh	11.00 to 11.50

PIPES AND FLUES

Chicago (net)	8.50 to 9.00
Cincinnati (dealers)	8.00 to 8.50
St. Louis	9.50 to 10.00

RAILROAD GRATE BARS

Buffalo	10.50 to 11.00
Chicago (net)	12.00 to 12.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.25 to 8.75
St. Louis	12.00 to 12.50

FORGE FLASHINGS

Boston (dealers)	6.50 to 7.00
Buffalo	11.00 to 11.50
Chicago	9.50 to 10.00
Cleveland (over 10 in.)	12.50 to 13.00
Detroit	9.50 to 10.00
Pittsburgh	13.50 to 14.00

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	15.25 to 15.75
Eastern Pennsylvania	10.50 to 11.00

ARCH BARS AND TRANSOMS

Chicago (net)	18.50 to 19.00
St. Louis	21.00 to 21.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	13.50 to 14.00
Chicago	10.25 to 10.75
Cleveland	12.00 to 12.25
Eastern Pennsylvania	12.00 to 12.50
Pittsburgh	13.00 to 13.50
St. Louis	9.50 to 10.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	16.50 to 17.00
Chicago	17.90 to 18.50
Cleveland	16.00 to 16.50
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	18.00 to 18.50
St. Louis	20.00 to 20.50

SHAFTING

Boston (shipping point)	13.50 to 14.00
Chicago	16.80 to 17.35
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	17.00 to 17.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 15.00
Boston (consumers)	17.00 to 17.50
Buffalo, iron	13.75 to 14.25
Buffalo, steel	15.75 to 16.25
Chicago, iron	14.25 to 14.75
Chicago, rolled steel	15.50 to 16.00
Cincinnati	13.00 to 13.50
Eastern Pennsylvania	15.50 to 16.00
New York iron (dealers)	12.00
Pittsburgh, iron	14.50 to 15.00
Pittsburgh, steel	16.50 to 17.00
St. Louis, iron	14.50 to 15.00
St. Louis, steel	14.75 to 15.25

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 14.50
Boston	14.50 to 15.00
Buffalo	14.00 to 14.50
Chicago, No. 1 machinery	15.75 to 16.25
Chicago, No. 1 railroad	14.55 to 15.10
Chicago, No. 1 agricultural	14.55 to 15.10
Cincinnati No. 1 machinery cupola (net tons dealers)	14.75 to 15.25
Cleveland, cupola	16.50 to 17.00
Detroit (net tons)	12.25 to 12.75
Eastern Pennsylvania (cupola)	16.50 to 17.00
New York, cupola (dealers)	13.00 to 13.50
Pittsburgh, cupola	14.50 to 15.00
San Francisco, delivered	20.00 to 21.00
Seattle	14.50 to 14.75
St. Louis, railroad	13.50 to 14.00
St. Louis, agricultural	13.50 to 14.00
St. Louis, machinery	14.50 to 15.00
Valleys	16.50 to 17.00

HEAVY CAST

Boston	15.00 to 15.50
Buffalo (breakable)	11.50 to 12.00
Cleveland	12.50 to 12.75
Detroit (automobile) (net tons)	20.00 to 21.00
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.75 to 12.00
Pittsburgh	13.00 to 13.50

MALLEABLE

Boston, railroad	13.00 to 13.50
Buffalo	14.50 to 15.00
Chicago, agricultural	11.75 to 12.25
Chicago, railroad	13.00 to 13.50
Cincinnati, railroad (dealers)	12.75 to 13.25
Cincinnati, agricultural (dealers)	12.25 to 12.75
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	13.00 to 13.50
Pittsburgh, railroad	14.50 to 15.00
St. Louis, agricultural	13.00 to 13.50
St. Louis, railroad	13.00 to 13.50

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.50 to 14.00
Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	15.00 to 15.50
Eastern Pennsylvania	15.25 to 15.50
New York	11.00 to 12.00
Pittsburgh district	16.25 to 16.75
St. Louis	15.00 to 15.50

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	14.00 to 14.50

LOW PHOSPHORUS PUNCHINGS

Chicago	14.00 to 14.50
Pittsburgh	16.50 to 17.00

Scrap

Light Buying and Large Supply Hold Prices Level—Rail Scrap Sells Well

BUYING of iron and steel scrap is in line with consumer operations, modified by yard reserves, though caution is being exercised by users. Dealers are bidding up in some instances to obtain tonnages to apply on contract. Railroad scrap is being sold at relatively high prices, indicating faith in future conditions. Prices generally are little changed.

Chicago, Jan. 31.—While the iron and steel scrap market has a firm tone, trading is light and consumer sales are confined to scattered lots. Prices are bid up by dealers in their efforts to fill short orders. Trading in heavy melting steel continues at $12.25 to $12.75, but dealers' asking prices apparently will be revised to $13 to $13.50. While cast borings are $10.25 to $10.75, the technical position is weak, with only one active consumer, and with the possibility of more borings entering this market because of closing down the Mayville, Wis., merchant blast furnace. Users are well stocked on No. 1 wrought, as on some other grades. Dealers continue to bid high for railroad offerings.

Boston, Jan. 31.—Prices in some lines have improved slightly. Most activity centered in heavy melting steel, scrap rails, railroad wrought, machine shop turnings and forge flashings. There is little demand for car axles or chemical borings, which are weaker. Little new buying appears.

New York, Jan. 31.—While far from active, the scrap market is somewhat livelier, several thousand tons of various grades having been purchased recently by eastern consumers, at practically unchanged prices. This includes melting steel for Conshohocken, Pa., $13.50; machinery cast for Phillipsburg, and Somerville, N. J., $16; turnings and bundles for Phoenixville, Pa., $10.75 and $10.25; borings and turnings and melting steel for Bethlehem, Pa., $10 and $13.50; and borings, yard steel and heavy cast for Harrisburg, Pa., $10.50, $11 and $15.50, delivered, dealers' prices in each case. Notwithstanding steadily mounting percentage of operations at mills, dealers look for little immediate change in scrap prices.

Philadelphia, Jan. 31.—Buying of iron and steel scrap is hand to mouth. A feature is continued lack of demand for No. 1 heavy melting steel. Current purchases of this grade by consumers are limited to lots of 2000 tons or less each, since mills generally have large tonnages on hand or due on orders. No. 1 heavy melting steel continues to bring $14, delivered. Several lots of No. 2 melting steel have been sold at $11 to $11.50, delivered eastern Pennsylvania.

Pittsburgh, Jan. 31.—Sales of heavy melting steel scrap at $15.25 are noted, with one or two at as high as $15.75 although not large tonnages. Successful bidders on the Pennsylvania railroad's list, totaling 46,175 tons, are expected to pay at least $15.50 for the heavy melting steel scrap, with other grades priced accordingly.

Buffalo, Jan. 31.—Prediction of higher prices on heavy melting steel apparently were well founded, as a Buffalo consumer has bought at least 2500 tons at close to $15.50. Another large melter is said to be about ready to re-enter the market while others are showing a little more interest in offerings.

Cleveland, Jan. 31.—Iron and steel scrap continues to come out as fast, if not faster, than the increase in the melt and as a result prices are unchanged. One large consumer at Youngstown is holding up all shipments while most other valley melters are regulating shipments closely. Heavy melting steel is unchanged at $13.75 to $14 at Cleveland, while the Mahoning valley market approximates $15. Valley prices may ease up this week.

Detroit, Jan. 31.—Iron and steel scrap proves most disappointing. Substantially all of the strength accruing in the early part of January has disappeared and with an increasing volume of scrap going at present levels prices are subjected to much pressure. Valley consumers are either holding up or regulating shipments. Melting steel is being thown down on dock preparatory to shipment by water to Cleveland when navigation opens. Prices are unchanged.

Cincinnati, Jan. 31.—Since the recent advance dealers in iron and steel scrap report buyers are cutting out inquiry and are buying only absolute needs. Prices are firm but demand is light.

St. Louis, Jan. 31.—Trading in iron and steel scrap is mainly in small lots, with the total only fair. Consumers are taking only what they require for immediate use. There is still strong resistance by all melters to prices.

Birmingham, Ala., Jan. 31.—With only three items of iron and steel scrap showing life the market is unchanged. Heavy melting steel is most active, at $10.50 to $10.75, delivered. Some scarcity in stove plate has developed.

Sheets

Other Grades Show More Firmness—Operations at Chicago Improve

AN ADVANCE of $3 a ton to 4.15c, Pittsburgh, on autobody sheets, is a feature of the market. Other grades of sheets also exhibit more strength. In blue annealed the tendency develops by reason of the fact makers of stripsheets are more inclined to put their prices on a parity with that grade. Makers of black and galvanized show more firmness in quoting 2.90c and 3.75c.

SHEET PRICES, PAGE 344

Pittsburgh, Jan. 31.—While demand for automotive sheets still drags, more of this business is developing each day. Specifications are becoming more active, some involving several hundred tons at a time. Sheetmakers are on a 75 to 85 per cent basis, the American Sheet & Tin Plate Co. having reached 74 per cent last week. Some of the recent car orders assure sheetmakers here several thousand tons of sheets. Prices are firmer. Some producers have advanced autobody stock $3 a ton to 4.15c, for second quarter. Stripsheet makers are more inclined to quote on a basis of blue annealed, and blue annealed shows more firmness at 2.10c. Black and galvanized are stronger at 2.90c and 3.75c, respectively.

Youngstown, O., Jan. 31.—Leading makers of autobody sheets have advanced their quotations $3 a ton to 4.15c, Pittsburgh. Other important valley makers of these sheets still quote 4.00c. These quotations apply to fill-in first quarter business. Some makers are not inclined to quote for second quarter. Specifications have fallen behind and independent mills have 76 per cent of capacity active this week, against 82 per cent last week. Users of autobody sheets are doing proportionately better than consumers of common sheets. Sheet prices are firmer than in months, with strong inclination to ask the maximums of 2.90c for black, 3.75c for galvanized, and 2.10c for blue annealed.

Detroit, Jan. 31.—An important maker of sheets is standing firmly, beginning Feb. 1, on blue annealed at 2.10c, Pittsburgh, and black at 2.90c. On autobody some now ask 4.15c. Galvanized are 3.65 to 3.75c.

Chevrolet is about to take figures on second quarter requirements. Some Ford holdups have been received. Independent body makers, like Briggs and Murray, are still slow. Auto output shows considerable improvement over December but is not quite up to expectations. January sheet consumption exceeds December, and February is expected to develop a much better increase.

Chicago, Jan. 31.—Sheet mill operations have been stimulated 5 to 10 per cent over a week ago by a heavier flow of specifications, and operations now are above 70 per cent. The leading independent is operating all of its Indiana Harbor and Milwaukee mills. Chicago delivered quotations are 3.05c for No. 24 black, 3.90c for No. 24 galvanized, and 2.25c to 2.35c for No. 10 blue annealed.

St. Louis, Jan. 31.—Distributors and manufacturers of sheets report a continued satisfactory demand, notably from car builders. Prices are steady.

Cleveland, Jan. 31.—Demand for steel sheets, although decidedly limited in new tonnage being placed, is sufficiently heavy in specifications to maintain 100 per cent operations in a number of mills. January orders were much more numerous than in January, 1927, and tonnage involved generally was heavier. Most specifications in this territory are being received from miscellaneous users, automotive and barrel trades being inactive. Can, container, enameled product and stamping manufacturers are taking more sheet steel. Rumors of an advance to 3.00c for second quarter for black sheets are heard more frequently, but 2.90c, Pittsburgh, continues base for spot sales. The bulk of shipments are against 2.80c and lower priced first quarter contracts. Blue annealed at 2.10c and galvanized at 3.85c are quoted on spot sales. Autobody is reported to have advanced to 4.15c, Pittsburgh, although little tonnage is coming to this territory.

University Will Conduct Foundry Conference

The department of mining and metallurgy of the University of Wisconsin, Madison, Wis., has announced the program for its second annual foundry conference which is to be held at the university, Jan. 31-Feb. 3. The conference has been organized especially for foundry superintendents, managers, foremen, chemists, metallurgists, and those persons actively engaged or interested in the problems of the foundry. The roundtable method of presenting the subject matter will be used. A registration fee of $10 has been established.

Schwab Sees Good Year

Charles M. Schwab, chairman of the Bethlehem Steel Corp. and president of the American Iron and Steel institute, on sailing for Europe Jan. 28 said:

"I am very optimistic on the steel outlook and feel that this year should prove an important one for the industry. The institute at its meeting Friday concurred in this view and was unanimous in its opinion that 1928 should be a profitable one for the steel industry."

Plans Coal Conference

A two-day program of interest to the producers, distributors and consumers of Indiana coals will be conducted at Purdue university, West Lafayette, Ind., April 5-6, under the direction of the engineering extension department and the school of mechanical engineering with the school of chemical engineering co-operating. Authorities on Indiana fuel resources, preparation of coal for commercial and domestic uses, marketing and storage, will take part in the conference.

Vitreous china plumbing fixtures shipped in November totaled 204,455 pieces, according to the department of commerce.

Tin Plate

Specifications Active—Mill Operations Improved

TIN PLATE PRICES, PAGE 344

Pittsburgh, Jan. 31.—January closed with tin plate specifications active, enabling mills to maintain average operations slightly over 75 per cent. American Sheet & Tin Plate Co. is at 76 per cent, and some independents schedule 80 per cent of their equipment.

March quotas are now practically all in from canmakers. While April specifications are not due until Feb. 15, a few already have materialized. The $5.25 price is firm. Stock tin plate is scarce.

Youngstown, O., Jan. 31.—Independent tin plate makers note a falling off in the volume of specifications. Mill operations are maintained around 90 per cent. Quotations are firm at $5.25, per base box, Pittsburgh.

Pipe

Spring Buying Movement Being Formulated—Mills Operating 70 to 75 Per Cent

PIPE mills continue operating 70 to 75 per cent of capacity on miscellaneous bookings and accumulated backlogs. Spring buying has not developed much volume as yet. Cast pipe activity of the week was limited to a few small transactions except for 1070 tons purchased by Minneapolis. New York and Springfield, O., are in the market for 4000 tons each.

PIPE PRICES, PAGE 344 AND 376

Pittsburgh, Jan. 31.—Pipe sellers report a fairly good movement of standard full weight merchant pipe to jobbers who are replenishing stocks, but the bulk of spring business is yet to be developed. Oil line inquiries are not coming out, but numerous gas line projects still are in the financing stage. Pipe mills are operating at 70 to 75 per cent.

Boston, Jan. 31.—Small tonnages continue to keep the market for cast pipe strong. On small sizes there is no change, but on the larger sizes concessions are made. Three hundred tons was awarded during the past week to an unnamed foundry.

New York, Jan. 31.—Cast pipe demand here continues restricted, with prices easy. Among the larger jobs contemplated is approximately 4000 tons of water pipe for the local department of water supply, gas and electricity. While this inquiry is expected out fairly soon, no definite date has yet been set for the issuance of specifications.

Chicago, Jan. 30.—Municipal buying of cast iron water pipe is confined largely to one and two carload lots. Little important municipal tonnage is out. Fair contract business is keeping producers' schedules a few weeks ahead. Purchase of 1070 tons of 6 to 24-inch pipe by Minneapolis from American Cast Iron Pipe Co. was for centrifugal pipe. Contract business is being booked on the basis of $28 to $30, Birmingham.

R. D. Wood & Co., Philadelphia, is low bidder on 500 fire hydrants for Milwaukee at $77, Milwaukee. Other bids included A. P. Smith Mfg. Co., East Orange, N. J., at $77.50.

Birmingham, Ala., Jan. 31.—Reports in the cast iron pipe trade, are that lettings are becoming more active as spring approaches and concessions continue allowed on base prices. Production is steady with prospects of some pipe on shop yards being removed.

CONTRACTS PLACED

1070 tons, 6 to 24-inch centrifugal pipe for Minneapolis, to American Cast Iron Pipe Co.

400 tons, 6 to 8-inch cast pipe for Yonkers, N. Y., to National Cast Iron Pipe Co. at equivalent of $39, Birmingham.

300 tons, Malden, Mass., awarded to unnamed foundry.

155 tons, 4 and 6-inch class B, improvement to

Boundary street, San Diego, Calif., to R. H. Downer; pipe to unstated maker.
100 tons, approximately, water pipe, Larchmont, N. Y., to United States Cast Iron Pipe & Foundry Co.
100 tons, approximately, water pipe, Newburgh, N. Y., to United States Cast Iron Pipe & Foundry Co.

CONTRACTS PENDING

4000 tons, 36-inch cast iron pipe, Springfield, O.; George B. Gascoigne, Cleveland, engineer.
4000 tons, water pipe for the department of water supply, gas and electricity, New York; contemplated; this pipe will be divided about equally between two boroughs.
600 tons, 6 to 12-inch pipe for Portsmouth, O.
300 tons, 18-inch pipe for Springfield, Ill.; bids received Jan. 31.
300 tons, 16-inch pipe, Leominster, Mass.; bids closed Jan. 31.
264 tons, 2 to 6-inch class C, improvement to Voltaire street, San Diego, Calif.; Bert Noble, low bidder.
261 tons, 4 to 8-inch class B or centrifugal, Pasadena, Calif.; bids in Feb. 2.
200 tons, 6 to 16-inch cast pipe for Syracuse, N. Y.; United States Cast Iron Pipe & Foundry Co. low bidder.
188 tons, 4 to 8-inch class B, Chowchilla, Calif.; went standard steel pipe.
150 tons, Gardner, Mass.; bids closed Jan. 27.
137 tons, 4 to 10-inch class 150, Modesto, Calif.; bids in Feb. 8.
119 tons, 8-inch class B, Modesto, Calif.; bids in Feb. 8.
100 tons, 6 to 12-inch pipe, Lowell, Mass.; bids closed Jan. 28.

Iron Ore

Market Outlook Encouraging—Negotiations Not Yet Started

IRON ORE PRICES, PAGE 374

Cleveland, Jan. 31.—While Lake Superior iron ore producers say the outlook for this year is encouraging, activity has not yet developed in the market. Prices are not being discussed seriously, though general sentiment appears to be there will be no change from last year. Inquiries have not appeared. Ford Motor Co., first in the market for several years, has larger stocks than usual and probably will not be in the market for some weeks.

Holds Meeting in South

The blast furnace committee of the United States Steel Corp., composed of 20 superintendents of subsidiary groups of stacks, under the chairmanship of C. A. Meissner met last week at the Birmingham, Ala., offices of the Tennessee Coal, Iron & Railroad Co. to discuss operating problems relating to elimination of flue dust and handling of raw materials.

Pig Iron Rate Is Upheld

Washington, Jan. 31.—The rate on imported pig iron, in carloads, from Galveston, Tex., to Beaumont has not been found unreasonable or unduly prejudicial by the interstate commerce commission in a decision in the case of the Beaumont Iron Works against the Gulf, Colorado & Santa Fe railroad. The complaint has been dismissed.

Bars

Specifications Larger as Users Seek Tonnage on Low Priced Contracts

BUYERS of steel bars with contracts at a lower price than present quotations are specifying heavily and mills have larger backlogs than for some time. Second quarter buying has not started and a higher level is expected to apply for that delivery. A Chicago maker finds sales the largest in two years. Recent price increases seem well established.

BAR PRICES, PAGE 344

Chicago, Jan. 31.—Bar mill operations are above 85 per cent. Specifications are coming in liberally on 1.90c contracts, and specifications for bars as well as other finished steel are reported by one producer as far above the average for last year. With one or two exceptions this producer reports present specifications and sales the highest of any weekly rate for the past two years. Farm implement interests are taking heavy tonnages. Automotive schedules are heavy for at least 30 days. Deliveries on bars, as well as plates and shapes, average about three weeks.

Alloy steel bar mill operations are above 80 per cent. Demand is active and prices steady. Shipments are fully equal to a year ago.

Both rail steel bar mills at Chicago Heights are on full turn. Demand is active from diversified lines. Spring buying of rail steel fence posts will not start in full until March, but some inquiry is developing. Reinforcing bar shipments are heavy. Mills seek to establish 1.85c for rail steel bars to the manufacturing trade, but attractive orders still go at 1.80c.

Two mills in this district report soft steel bar orders of less than 100 tons at 2.05c. Buying at 1.95c, Chicago, is light, but users seem anxious to fulfill obligations on 1.90c orders.

Pittsburgh, Jan. 31.—More active specifications have come to merchant steel bar makers since the increase to 1.85c, Jan. 19. These have applied against orders at 1.80c and lower although much and in some cases most lower priced business has been cleaned up. Business is slightly ahead of January of last year. Books have not been opened for second quarter, an additional advance being contemplated for that period. Demand is on the upgrade and promises to hold good through second quarter. Intermittent small day-to-day orders are being taken at 1.85c.

Refined iron bar orders are still limited to small quantities, but the total tonnage is growing from week to week. Prices start at 2.75c.

Buffalo, Jan. 31.—Steel bars are firm at 1.90c, Lackawanna. Sales and inquiry are gaining. Buffalo steelworks are operating at more than 80 per cent of capacity.

Youngstown, O., Jan. 31.—Carnegie Steel and independent makers of steel bars are closing the month with more specifications on their books than in six months. The inflow of new business has been notable especially from makers of cold-finished material, and also from kindred users. The quotation of 1.85c, Pittsburgh, holds firmly. Shipments also are improving with valley mills.

Cleveland, Jan. 31.—Increased demand from the automobile industry is largely responsible for an active steel bar market. January sales for some producers were practically as heavy as in December. Bolt and nut makers are steadily increasing their consumption of bars. Makers quote 1.85c, Pittsburgh or Cleveland.

Detroit, Jan. 31.—Forgers are taking heavy shipments of soft steel bars, making receipts here heavier both than December and last January. Some sellers have heavier bookings in January than in December despite the activity of last month. On small sizes four to five weeks is the best delivery possible. Dodge is buying bars from a Cleveland mill but otherwise the Pittsburgh level of 1.85c is applying on new business.

Central Iron Works Goes to McClintic-Marshall

San Francisco, Jan. 31.—The Central Iron Works, of San Francisco, one of the oldest fabricating plants on the west coast, has merged with the McClintic-Marshall Co. and will be known as the McClintic-Marshall Co.'s Central works, giving the company two plants on the coast. The Central works was organized in 1900 by A. A. Devoto, who will continue as general manager, with A. B. Charlton as works manager and Harry Mortenson as secretary.

Sheet Mills Run Safely

Pittsburgh, Jan. 31. — Fourteen plants of the American Sheet & Tin Plate Co., employing 7448 persons, went through November without a single lost-time accident. November was the fourth consecutive month in which the Gary sheet mill reported no lost-time accidents. At each of four plants, employing 5002 persons, only one lost-time accident occurred in November.

Structural Shapes

Large Tonnage Lettings Continue Sufficiently Numerous to Maintain Better Operations —New York Subway Needs Large

AIDED by numerous large tonnage awards, structural shape activity continues on a high plane. Included in awards of the week are 9300 tons for two sections of New York subways and 5600 tons for a New York loft. Additional work for the Cleveland Terminals accounted for 35,800 tons in the week's total. Large projects spot the inquiry list, the expansion of New York subways now requiring 12,000 to 13,000 tons, with close to 40,000 tons to be purchased before Nov. 1. Chicago Civic Opera building will require 25,000 tons.

The rush of buyers to cover their steel needs for projects maturing in spring construction is attributed to stiffening prices on plain structural material.

STRUCTURAL SHAPE PRICES, PAGE 344

Cleveland, Jan. 31.—Increased activity in the local structural shape market is expected to follow the closing of requirements on the remainder of the Cleveland Union Terminals project, involving 35,800 tons in addition to the 22,000 tons announced placed last week. Numerous small lots are under negotiation, but awards are few. Plain material prices are firm at 1.85c, Pittsburgh, for spot delivery, with the bulk of current shipments being on 1.80c contracts. Some makers are indicating possibilities of a further advance in prices before April 1.

Boston, Jan. 31.—Less than 1000 tons was awarded in the past week continuing to keep the general situation quiet. Lever Bros. placed 605 tons for warehouses and plants.

New York, Jan. 31.—Close to 25,000 tons of subway work is now actively pending. General contractors' bids are in on two of the three projects involved and bids on the third have just been asked. Close to 40,000 tons of additional subway work will be brought out before Nov. 1, according to board of transportation's schedules. This additional work will involve 23 different jobs. Featuring buying are awards of two subway sections involving 9300 tons and a 5600-ton office building on Fifth avenue. Plain shape prices, following recent mill announcements, are firming rapidly to a minimum of 2.145c, New York.

Chicago, Jan. 31.—While structural steel awards are light a continued flow of small-lot business is reported, and inquiry for heavy structural work continues active. Approximately 5000 tons has come out in new inquiry during the week and other inquiry is taking form. Operations of structural mills are close to the ingot rate for the district. Mills are asking 1.95c, Chicago, for all new business, but the larger users have covered at 1.90c. Atchison, Topeka & Santa Fe railroad is inquiring for 20,000 tons of shapes for 1928 requirements. Bids go in Feb. 2 on 25,000 tons for the Chicago Civic Opera building.

Pittsburgh, Jan. 31.—Structural shape awards since the American Bridge Co. successfully bid upon the 57,800-ton lot for the Cleveland Union Terminals Co., 22,000 tons of which was reported in last week's IRON TRADE REVIEW, have been scarce. Mills are encountering greater speed on the part of their customers in specifying, but these shipping instructions all apply on material coming to them at lower prices than the present open market figure of 1.85c which is the strong minimum quotation applying until April 1. Fabricating shops in this territory are booked in fair shape. The largest job up locally involves 5500 tons for the Thirty-first street bridge.

Philadelphia, Jan. 31.—Eastern shape mills are running with good schedules as a result of heavy specifications last December. Mills generally are quoting 2.00c, Bethlehem, equivalent to 2.13c, delivered Philadelphia on new business. Maany tonnages are outstanding with old protections, hence little real test is expected until early March.

Awards Compared

	Tons
Awards this week	68,687
Awards last week	67,041
Awards two weeks ago	31,045
Awards this week in 1927	49,445
Average weekly awards Jan.	31,359
Average weekly awards, 1928	55,891
Total awards to date, 1927	191,767
Total awards to date, 1928	154,479

CONTRACTS PLACED

35,800 tons, Cleveland Union Terminals Co., Cleveland, for Cleveland hotel addition, station proper, Huron road bridge, in addition to 22,000 tons reported in last week's issue, for the medical arts, garage and mercantile building, to American Bridge Co.

9300 tons, a 6000-ton section of Nassau-Broad street subway, New York, to the American Bridge Co., through Moranti & Raymond, contractors and a 3300-ton section to McClintic-Marshall Co. through Marcus Contracting Co.

5600 tons, Lefcourt building, Forty-third street and Fifth avenue, New York, to Paterson Bridge Co.,

5000 tons, bridge across Mississippi river at Vicksburg, Miss., for Vicksburg Bridge & Terminal Co., west approach to Virginia Bridge & Iron Co., superstructure for spans, to American Bridge Co.

2900 tons, Savoy Plaza addition, Fifth avenue, New York, to American Bridge Co.

1200 tons, telephone building, Washington, to Lehigh Structural Steel Co.

1150 tons, loft on West Thirty-sixth street, New York, to Harris Structural Steel Co.

1000 tons, transmission towers for unidentified buyer to Riter-Conley Co.; formal order to be placed Jan. 31 or Feb. 1.

800 tons, apartment, East Orange, N. J., to McClintic-Marshall Co.

700 tons, apartment, East Fifty-seventh street, New York, to Paterson Bridge Works.

672 tons, Argos crossing, Seattle, to Hofius Steel & Equipment Co.

610 tons, involved in following two awards: Office, 684 Fifth avenue, New York, to Hedden Iron Construction Co.; Office building, Garden city, Long Island, N. Y., to Eidlitz & Ross.

600 tons, wharves, Lake Charles harbor commission, Lake Charles, La., to Orange Car & Steel Co.

600 tons, overhead roadway on the west side of Grand Central station, New York, to Taylor-Fichter Steel Construction Co.

475 tons, Lever Bros. warehouse, Cambridge, Mass., to New England Structural Co.

400 tons, Professional building, Seventy-sixth street and Madison avenue, New York, to Harris Structural Steel Co.

400 tons, state highway bridge, Croton, N. Y., to fabricator in New York district.

350 tons, addition to office building for Protective Life Insurance Co., Birmingham, Ala., to Ingalls Iron Works Co. Inc.

300 tons, addition to F. W. Woolworth Co. branch in Vesey street, New York, to Harris Structural Steel Co.

300 tons, bins for J. K. Davison & Co., Pittsburgh, to Blaw-Knox Co.

200 tons, building, Scarsdale, N. Y., to American Bridge Co.

200 tons, repairs to Wells street electric railway viaduct, Milwaukee, to Milwaukee Structural Steel Co.

200 tons, garage, 310-12 West Thirty-ninth street, New York., to Kues Bros.

180 tons, plain material for Pacific Fruit Express Co., San Francisco, to unnamed interest.

150 tons, Mac Millan stores, Newbury street, Boston, to Lehigh Structural Steel Co.

150 tons, job for Stone & Webster, Inc., in Wyoming, to Pittsburgh Bridge & Iron Works.

130 tons, Lever Bros. remodeling of plant, Cambridge, Mass., to Boston Bridge Works Inc.

100 tons, new theater building, Leominster, Mass., to James H. Tower Iron Works.

100 tons, including Masonic temple at Willoughby, O., to Republic Structural Iron Works Co.

Unstated tonnage, 3-story building for Michigan Bell Telephone Co., Pontiac, Mich.

Unstated tonnage, apartment, 223 East Fifty-fourth street, New York, to Dreier Iron Works.

Unstated tonnage, building for Sears, Roebuck & Co., at Gratiot and Van Dyke avenues, Detroit; George C. Nimmons & Co., Chicago, architects.

CONTRACTS PENDING

25,000 tons, estimated, Chicago Civic Opera building, Chicago; Graham, Anderson, Probst & White, architects. Bids on gen-

eral contract in Feb. 2.
20,000 tons, fabricated and plain structural material for 1928 requirements of Atchison, Topeka & Santa Fe railroad.
12,000 to 13,000 tons, subway section 1, route 108, Queens, New York; bids asked.
8000 tons, Harlem river tunnel, for board of transportation, New York; bids on general contract opened; this project will require 10,000 tons of cast segments.
5500 tons, Thirty-first street bridge, Pittsburgh; bids closed Feb. 1.
2200 tons, Newtown creek, tunnel for board of transportation, New York; Mid-Eastern Contracting Co., 236 West 116th street, awarded general contract; this project will require 12,000 of cast segments.
1500 tons, telephone exchange building at Des Moines, Iowa; steel bids in.
1500 tons, viaduct for Soo line, at Schiller Park, Ill.
1000 tons, theater, Jamaica, Long Island, N. Y.; bids asked.
1000 tons, apartment, Fifth avenue, New York; bids asked.
900 tons, apartment hotel at 1325 Astor street, Chicago.
800 tons, sheet steel piling, Coyote Point bridge, San Francisco; bids in.
600 tons, building for J. A. Zurn Co., Erie, Pa.; bids being compiled.
535 tons, state hospital, Utica, N. Y.; Felton Construction Co., Buffalo, contractor.
500 tons, garage building, Albany, N. Y.; bids in.
500 tons, library, Jamaica, Long Island, N. Y.; this previously was noted as involving an unstated tonnage.
500 tons, bridges for Missouri, Kansas & Texas railroad; steel bids in.
400 tons, Ontario street bridgework for Cleveland Union Terminals Co., Cleveland; award to general contractor expected this week.
270 tons, bridge for Boston & Albany railroad in Boston.
250 tons, nurses home Worcester, Mass.; J. W. Bishop Co. awarded general contract.
233 tons, bridge over Clark Fork river, Sanders county, Idaho; bids opened.
200 tons, Middletown savings bank, Middletown, Conn.; previously noted as involving an unstated tonnage.
100 tons, warehouse, Peralta and Twenty-fourth street, Oakland, Calif.; bids being taken.
100 tons, Sacred Heart church addition, Shady avenue, Pittsburgh; bids to be asked soon.
100 tons, store building for S. S. Kresge Co. near 105th street and Euclid avenue, Cleveland; Minton-Scobell Co., general contractor. Alliance Co. low bidder on structural steel.
100 tons, building for Cleveland Packard Co., Cleveland; being redesigned.
100 tons, First Baptist church, Cleveland; being refigured.
Unstated tonnage, high school, Valley Stream, Long Island, N. Y.
Unstated tonnage, administration building, department of agriculture, Washington; bids in March 5 by James A. Wetmore, supervising architect, treasury department.
Unstated tonnage, main building and garage, Marine hospital, Detroit; bids in Feb. 29 by James A. Wetmore, supervising architect, treasury department, Washington.

Arrange Summer Course for Business Men

The Harvard Business school of Harvard university, Cambridge, Mass., announces that it will conduct a special session for business executives from July 9 to Aug. 18. The following subjects will be available: Accounting policies; business policy and law; finance; marketing, sales management, and advertising; marketing, retail store management, and advertising; public utility management and economics; and railway transportation. Each course will require the full time of the student and classes will meet four hours daily. The case method involving formal discussion of actual business problems will be followed.

Ontario Knife Co., Franklinville, N. Y., has distributed $10,721.29 in bonuses to 229 employes.

Concrete Bars

Heavier Projects Materializing—Awards Include 1650-Ton Store at Fort Worth

AWARDS of concrete reinforcing bars for the week included 1650 tons for a store building in Fort Worth, Tex. Numerous large tonnage projects are being contemplated, including tunnel construction in New York. Upward trend in prices is a factor in stimulating buyers to action before late spring. Sellers in the New York district are expecting another $1 a ton increase.

REINFORCING BAR PRICES, PAGE 344

New York, Jan. 31.—Tunnel requirements continue the leading feature of the concrete reinforcing bar market here. Several lots in connection with tunnel construction are pending and 500 tons for such work was placed in the past week. It is expected sellers generally will give consumers only a few days longer to place tonnage at the 1.90c, base, Pittsburgh, price on mill shipments and that the trade shortly will be on a minimum of 1.95c. No changes yet have developed in connection with the price on concrete bars in warehouse here. This range continues 2.80c to 3.24c, base, delivered New York. The Youngstown warehouse price also is unchanged at 2.20c, base, Youngstown.

Boston, Jan. 31.—Aside from the continued inflow of small orders which range from 20 to 50 tons, the only awards during the past week for reinforcing jobs were 475 tons for the Border street outlet in the East Boston section, and 200 tons to Truscon Steel Co. for the Providence court house.

Pittsburgh, Jan. 31.—Concrete bar projects for the most part are being held in abeyance, but a number of larger jobs are up for early attention. The 300 tons noted last week as being awarded the Carlem Engineering Co. for the William Penn hotel addition was not closed definitely and the job is to be refigured. Nicola Building Co. will purchase about 300 tons this week for Mayview hospital buildings project. A small quantity of bars has been bought by Rust Engineering Co., general contractor, on the Koppers Co. building job here, but the main tonnage for the superstructure is to be let soon. Concrete bars are 1.85c to 1.90c.

Buffalo, Jan. 31.—Slow covering of outstanding inquiry for reinforcing bars is noted here. The amount of inquiry remaining to be covered is increasing with prospect of a rush of business in the early spring. Steelworks are holding the reinforcing bar price steady at a minimum of 1.90c, Lackawanna, for large lots suitable for direct shipment; while 2.25c and up is asked on lots delivered from mill warehouses.

Cleveland, Jan. 31.—Concrete reinforcing bar activity in this district involves several projects of 500 tons or more each, but awards continue confined to lots of 15 to 50 tons. New billet steel prices are reported slightly firmer, with 1.85c, Cleveland mill, or 1.85c, Pittsburgh, being quoted. On attractive tonnages, however, several dollars a ton lower has been done on the Cleveland base. Rail steel bar prices remain unchanged at 1.65c to 1.75c, mill. Concrete bars from stock are 2.20c, Youngstown, or 2.30c, up, Cleveland.

Chicago, Jan. 31.—Both rail steel and billet steel reinforcing bar fabricators are stiffening their prices. Rail steel sellers have named 1.95c as the quotation for bridge and culvert bars, and 1.85c, Chicago Heights, for bar slabs for road work and bars for the building industry. Billet bar dealers have named 2.30c as a minimum, and are asking up to 2.75c for lighter tonnage orders. Building work in prospect is heavy but a lull has developed in awards. Architects and engineers have much work on their boards.

Awards Compared

	Tons
Awards this week	6,420
Awards last week	12,066
Awards two weeks ago	7,476
Awards this week in 1927	1,565
Average weekly awards, Jan.	8,613
Average weekly awards, 1928	8,045
Total awards to date, 1927	16,614
Total awards to date, 1928	32,260

CONTRACTS PLACED

1650 tons, plant addition for Montgomery, Ward & Co., at Fort Worth, Tex., to Concrete Engineering Co.
600 tons, 380 tons rail and 220 tons billet steel, for Arsenal street viaduct, St. Louis, to Laclede Steel Co.
500 tons, subway section 1, route 45, Nassau street, New York, to McClintic-Marshall Co.
500 tons, apartment hotel, Chicago, to Inland Steel Co.
475 tons, Border street outlet, East Boston, Mass., to Concrete Steel Co.
475 tons, merchant bars and angles, Pacific Fruit Express Co., San Francisco, to unnamed interest.
400 tons, rail steel, apartment, 222 East Chestnut street, Chicago, to Inland Steel Co.
331 tons, Stony Gorge dam, Orland, Calif., as follows: 286 tons to Laclede Steel Co. and

45 tons to Pacific Coast Steel Co. instead of 281 and 45 tons to Pacific Coast Steel Co. and Laclede Steel Co., respectively as reported last week.

270 tons, Shawmont school, Philadelphia, to Concrete Steel Co.

250 tons, rail steel, unnamed structure in Chicago, to Inland Steel Co.

250 tons, rail steel, Illinois highway work, Illinois, to Olney J. Dean Co.

250 tons, warehouse for Great Atlantic & Pacific Tea Co., Garden City, Long Island, N. Y., to Igoe Bros.

200 tons, state highway cut-off, Asbury Park, N. J., to Truscon Steel Co.

200 tons, court house, Providence, R. I., to Truscon Steel Co.

200 tons, girls dormitory, Berkeley, Calif., to Steel Service Co.

100 tons, state office building, Harrisburg, Pa., to A. Taylor Co. Inc.

100 tons, bridgework for highway commission, Ohio, to Republic Structural Iron Works Co.

CONTRACTS PENDING

1200 tons, Edgewater Athletic club, Chicago.

780 tons, Passavant hospital, Chicago.

765 tons, bars and bar joists, for state hospital, Utica, N. Y.; Felton Construction Co., Buffalo, contractor.

400 tons, apartment building at 222 Chestnut avenue, Chicago.

300 tons, Mayview hospital buildings, 14 in number; bars to be bought by Nicola Building Co., Pittsburgh, within next week.

300 tons, Harlem river tunnel, New York.

300 tons, William Penn hotel addition, Pittsburgh; being refigured.

275 tons, section 1, route 108, subway in borough of Queens, New York.

200 tons, additional work, Grant building, Pittsburgh; bids being received.

180 tons, hospital, Rochester, N. Y.; bids in Jan. 18.

135 tons, Newtown creek tunnel, New York; general contract to Mid-Eastern Contracting Co.

120 tons, bridge over Milwaukee river, Grafton, Wis.

100 tons, school No. 47, Buffalo; bids in Jan. 24.

100 tons, McMillan stores, Newbury street, Boston.

100 tons, Penbridge hotel, Evanston, Ill.

Tonnage unstated, superstructure for Koppers Co. building, Pittsburgh; bids about to be asked.

Unstated tonnage, state owned toll bridge across Bed river at Fulton, Ark. for Arkansas state highway commission; Keliher Construction Co. awarded general contract.

Waterbury Rate Upheld

Washington, Jan. 31.—The carload rate on pig iron from Port Henry, N. Y., to Waterbury, Conn., has not been found unreasonable or otherwise unlawful by the interstate commerce commission in a decision in the case of the Manufacturers Foundry Co. against the Delaware & Hudson railroad. The complaint has been dismissed.

The American Society for Steel Treating has published as additions to its *Handbook* the following data sheets: "Tentative Definitions of Terms Relating to Heat Treatment Operations;" "Recommended Practice for the Heat Treatment of Nonshrinking, Nondeforming, Oil-Hardening Tool Steels;" "Tentative Recommended Practice for the Heat Treatment of Dies for Die Casting;" and "Tentative Recommended Practice for the Heat Treatment of Shear Blades."

Rails, Cars

Rail Awards Exceed 40,000 Tons —Pennsylvania Orders 613 Coaches—Cars More Active

ACTIVITY in the rail and equipment market was at a higher rate in the past week. Rail awards include 15,000 tons by Western Pacific. Rock Island may buy 35,000 to 40,000 tons. Track fastenings closed totaled 20,000 to 25,000 tons at Chicago. Pennsylvania ordered 613 coaches, and Chesapeake & Ohio 500 car bodies. St. Louis-San Francisco has inquired for 4500 cars.

RAILROAD TRACK MATERIAL PRICES, PAGE 344

Chicago, Jan. 31.—Estimates are that approximately 75,000 tons of standard steel rails still are before the western market. About 14,000 tons were closed in one order from a western road. Chicago, Rock Island & Pacific will not place its order now, but it is understood that this road may buy 35,000 to 40,000 tons later. Western Pacific ordered 15,000 tons of rails from Colorado Fuel & Iron Co. Rail mill operations are above 80 per cent.

Inquiry for track fastenings is heavy. Some of this tonnage will be bought quarterly, while other lots are being placed following rail orders. Track fastenings bought the past week totaled 20,000 to 25,000 tons.

It is understood the St. Louis-San Francisco inquiry has been enlarged to 4500 freight cars. The hoppers will be 55-ton, instead of 70-ton, according to revised plans.

New York, Jan. 31.—Featuring the eastern car market is the award of 613 coaches, by the Pennsylvania, of which 112 will be erected in the company's own shops. This is one of the largest contracts of its kind ever placed and likely will be supplemented by the purchase of more than 50 additional coaches. Award of 500 gondola bodies has been made by the Chesapeake & Ohio. Locomotive demand is slack.

Central Railroad of New Jersey has placed an order with the Bethlehem Steel Co. for 13,494 gross tons of rails. The order involves 10,830 tons of 130-pound and 2664 tons of 100-pound rail. The trade estimates that 8000 freight cars and 360 passenger cars are pending actively.

Pittsburgh, Jan. 31.—Recent orders assure rail production on a high basis until July 1. So far as can be learned here, the Nickel Plate railroad has not distributed orders on its spike and tie plate inquiry involving 3500 tons. Spike makers continue to operate at 70 per cent, or slightly higher, with 2.80c as their price. Some makers deny that steam railroads are obtaining a $2 preferential figure on standard spikes.

CAR ORDERS PLACED

Central of Georgia, 500 gondolas, to Tennessee Coal, Iron & Railroad Co.

Chesapeake & Ohio, 500 steel hopper bottom gondola car bodies, 300 going to Richmond Car Works and 200 to American Car & Foundry Co.

H. C. Frick Coke Co., of 641 hopper car repairs announced awarded unstated builders last week, 174 went to Greenville Steel Car Co., 137 to Standard Steel Car Co., and 137 to American Car & Foundry Co.

Illinois Central, two air dump cars, to Differential Steel Car Co.

Lehigh & New England, 200 hopper car repairs, to American Car & Foundry Co.

Long Island, ten baggage cars and two baggage-mail cars, to American Car & Foundry Co.

New England Fuel & Transportation Co., 50 mine cars, to Bethlehem Steel Co.

Norfolk & Western, 250 90-ton steel gondolas, to its Roanoke, Va., shops.

Pennsylvania, 613 miscellaneous coaches, awarded as follows: Of 300 70-foot coaches, 150 went to Standard Steel Car Co., 88 to Bethlehem Steel Co., 50 to Pressed Steel Car Co. and 12 to its own shops; of 210 60-foot baggage cars, 85 went to St. Louis Car Co., 75 to American Car & Foundry Co. and 50 to J. G. Brill Co.; 45 scenery cars, 25 horse express and 20 passenger and baggage, all to company's own shops; and 7 gasoline-electric cars to J. G. Brill Co. and 6 to Pullman Car & Mfg. Corp.

LOCOMOTIVE ORDERS PLACED

Norfolk & Western, 30 locomotive tenders, to its Roanoke, Va., shops.

Siamese State railways, eight locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Norfolk & Western, rebuilding of 1000 all-steel hopper cars; bids asked.

Southern Pacific, 300 box car underframes and superstructure parts; bids asked.

St. Louis-San Francisco, revised, 4500 freight cars consisting of 2000 55-ton hoppers, 1500 50-ton box, 500 50-ton automobile cars, and 500 50-ton flat cars.

Union Pacific, six gasoline-electric cars and eight trailers.

Pennsylvania, 300 refrigerator cars.

Austrian Production Up

Washington, Jan. 31. — Production of pig iron in Austria in the first nine months of 1927 totaled 320,604 metric tons, compared with 254,399 tons in the same period of 1926, according to the department of commerce. Raw steel output in 1927 was 411,146 tons or 10.7 per cent over 1926. Iron ore production was 1,143,976 tons or 33.7 per cent over the same period of 1926.

Mexico received 1,206,950 pounds of iron or steel sheets from the United States export total, in October.

Wire

Higher Prices Announced and Firmness Continues — Jobbers and Consumers Buying Well

AN ADVANCE of $2 in wire and wire products reflects the firmness of the market and the strong demand coming to mills. Production is being increased and now nears 70 per cent in most cases. Specifications are increasing. Mills have well assorted stocks and jobbers are rounding out supplies for spring demand. Nails continue relatively slow.

WIRE PRICES, PAGE 344

Pittsburgh, Jan. 31.—All independent producers have followed the American Steel & Wire Co.'s advance of $2 in wire products of Jan. 25-26. They now quote 2.50c on plain wire and $2.65 on wire nails. Bale ties were included, but not fencing. No sales have been noted at the new figures because of extensive coverage at former prices. Unfilled orders are strengthened and specifications are more rapid. Wire mills are operating at 60 per cent or slightly higher.

New York, Jan. 31.—Other wire makers have followed the advance of $2 announced Jan. 27, by the American Steel & Wire Co., or are expected to do so soon. The new prices are 2.50c, base, Pittsburgh, on plain steel wire and $2.65, base, Pittsburgh, on wire nails.

Worcester, Mass., Jan. 31.—Buying of wire is broadening and prices are firm. Activity shows increase. Mill operations are nearing 70 per cent in most instances. While consumers continue to take wire close to requirements, inquiries for more advanced booking is reported. Mills are well up to delivery. Nails are slow.

Buffalo, Jan. 31.—Heavy shipments of wire cloth and poultry netting are being made. Automobile industries have been buying more freely. Some inquiry for spring delivery of welded mesh is appearing.

Detroit, Jan. 31.—Plain wire is fairly firm at 2.40c, Cleveland, but the $2.55 level on wire nails is being shaded. Specifications show moderate improvement over December but are not equal to last January.

Chicago, Jan. 31.—New quotations on some important lines of wire products, representing an advance of $2 a ton, are 2.55c, Chicago or western mill, for bright plain wire; $2.70 for wire nails; and 3.40c, Chicago, for galvanized barbed wire. Specifications and buying are at a high rate. Operations are climbing toward 70 per cent. Jobber and manufacturing lines are active. Producers are filling stocks for spring trade. Demand for woven wire fencing promises well. Shipments are far ahead of last year.

Cleveland, Jan. 31.—Increase of the wire and wire nail prices $2 a ton, effective Jan. 26, has been accepted generally by producers, and a much more stable market is anticipated the remainder of the quarter. Interests in Indiana which had been entering western Ohio at 2.30c and 2.35c, Cleveland, on plain wire, and producers in the Ohio river district shipping nails into southern Ohio at $2.45 and $2.50 per 100-pound keg, have adopted the new levels of 2.50c, Cleveland, for plain wire, and $2.65 for wire nails. Specifications are only fair, but are heavier than in December.

Cold Finished Steel

More Activity Appears and Users Specify Full Quotas

COLD FINISHED PRICES, PAGE 344

Pittsburgh, Jan. 31.—Cold finished bars are growing more active, each week's tonnage larger than the week before. Buyers apparently know the spread between cold finished and hot rolled bars has been too narrow from a cost standpoint and is destined shortly to be widened and seek all the tonnage they can obtain on the present basis of 2.20c. An early advance to 2.30c is indicated. Operating schedules are at 70 to 75 per cent. The automotive industry exceeds other consuming lines, as usual, but practically every cold finished user is represented in current specifications. On Jan. 26 the Jones & Laughlin Steel Corp. advanced its price on turned and ground shafting $2 per ton, in harmony with the advance made Jan. 16 by the Cumberland, Md., maker, going to 2.45c on 2⅛ to 7-inch, and to 2.90c on 1⅜ to 1½-inch with intermediate sizes carrying prices accordingly. Turned and polished shafting is sold on the cold finished base, 2.20c.

Bolts, Nuts, Rivets

Buying Gaining Steadily with Prices Holding Well

NUT AND BOLT PRICES, PAGE 344

Pittsburgh, Jan. 31.—Nut, bolt and rivet orders are increasing. Several single carload orders of the latter have developed from car builders, railroad as well as structural fabricating shops. Jobbers are ordering more nuts and bolts, and users show a tendency to expand their specifications somewhat. Operations are at 60 to 70 per cent. Prices are firm at 70 off on nuts and bolts and 2.75c for rivets.

Chicago, Jan. 31.—Specifications for bolts, nuts and rivets are gaining steadily. Farm implement interests continue among the leading buyers. Carload buyers of bolts continue to get 70 off, but recently considerable small-lot business has been taken in Iowa and other parts of the West at 55 and 60 off. The 3.10c, Chicago, price has practically disappeared for carload lots of structural rivets. Operations are climbing steadily upward and now are 65 to 70 per cent.

Cleveland, Jan. 31.—Demand for bolts and nuts from automotive and jobbing interests and the railroads comprises a large share of the good current volume of specifications. Railroad buying of rivets is increasing slowly. Plant operations continue at better than 60 per cent. Prices hold to quoted levels, with little business being placed on a spot basis.

Strip Steel

Specifications Larger Than Year Ago —Market Is Improving

STRIP PRICES, PAGE 344

Pittsburgh, Jan. 31.—Strip steel specifications are ahead of January, 1927. Manufacturers are endeavoring to lift prices but the fact that the trade is protected for first quarter militates against their success. Some now are quoting 3.15c on one to three tons of cold strips, but find customers slow to close now for second quarter. Buyers report that 3.00c still is being named, but in all probability this is for delivery over the remainder of first quarter only. This makes the market on three tons or more quotable at 2.75c to 2.90c.

Hot strips are quoted in wider sizes, 6 to 12-inch, at 1.80c to 1.90c, with Pittsburgh makers trying to adhere to that maximum. They still encounter keen competition from other angles. Material up to 6 inches wide is 2.00c to 2.10c, and the full spread on hoops and bands is 2.10c to 2.30c. Specifications are growing.

Cleveland, Jan. 31.—Hot strip specifications are improving. The number of orders received in January was larger than in that month last year, increasing 50 per cent in some cases. Prices on hot strip continue untested, only small spot lots being quoted 1.85c, Pittsburgh, for 6 to 12-inch, and 2.05c for less than 6-inch. Prices have been advanced on cold finished strip, with 2.90c, Cleveland, for 3 tons and over and 3.15c for less. Several producers have made effective a new price basis, of 3.00c for less carloads but over 3 tons and 3.15c for 1 to 3 tons, with 2.90c, available only to large customers.

Nonferrous Metals

Buying Light to Moderate but Little Shading of Established Prices Develops—Users Appear to Be Covered on Immediate Needs

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin March	Lead New York	Lead East St. Louis	Zinc St. Louis	Zinc 98-99% Aluminum	Spot Antimony	Ingot Nickel
Jan. 25	14.12½	14.25	13.87½	55.12½	55.25	6.50	6.27½	5.67½	23.90	11.00	35.00
Jan. 26	14.12½	14.25	13.87½	54.75	54.75	6.50	6.27½	5.67½	23.90	11.12½	35.00
Jan. 27	14.12½	14.25	13.87½	55.50	55.50	6.50	6.27½	5.67½	23.90	11.25	35.00
Jan. 30	14.12½	14.25	13.87½	54.87½	54.87½	6.50	6.27½	5.67½	23.90	11.12½	35.00
Jan. 31	14.07½	14.27	13.75	54.50	54.50	6.50	6.25	5.67½	23.90	11.12½	35.00

NEW YORK, Jan. 31.—Prices are firm in the nonferrous metal markets despite light to moderate buying and periods of several days in which almost no business has been done. Quotations of late have held at about the levels reached early in December.

Here and there some price shading has appeared but it has been confined mostly to early shipment metal and has been very narrow. On the other hand certain prices have actually worked a little higher.

It looks as if substantial buying will have to be done soon, however, if the markets are to remain steady. Users are fairly well covered for February but little metal except tin has been bought beyond that month. Brass and copper mill product prices remain unchanged. Few new orders of size have been signed but shipments continue of good size.

Copper—Large export sales were made a week ago at 14.50c c.i.f. European ports, but in the past few days the market has been quiet. Export business helped to make the domestic market firmer and some metal sold at 14.12½c, Connecticut, but it was not large. Midwestern prices are mostly about ⅛-cent over this price. On prompt shipment metal probably these two quotations could be shaded slightly.

Zinc—Prime western metal has advanced a few points from 5.62½c, East St. Louis, to 5.67½c and 5.70c. Business has not been large. Firmness in the ore market influenced the advance. Prices of high grade zinc are unchanged but supply is increasing.

Tin—Recent strength has been replaced by easiness and the market has fallen below 55.00c again. Some active days have been noted in the market but as a whole business with consumers was light the past week. Users appear well covered for two months or so ahead and in some instances longer. Supplies are liberal although not excessive. The professional trade appears perplexed by the erratic price fluctuations lately.

Lead—Prices have held practically unchanged for several weeks while a moderate amount of business has been done.

Aluminum—Some contracts have been signed to cover users' needs for several months and in one or two cases for the balance of the year. The market is firm and a little more active.—*Daily Metal Trade.*

Seek to Unionize Steel Via Coal Mines

Youngstown, O., Jan. 31.—A new attempt by organized labor to unionize the steel industry may be undertaken with company coal mines the first objective, it is reported here. The suspension of an important western Pennsylvania mine by an Ohio River steel producer, owing to bad ice conditions on the rivers, is said to prompt this move. Although employment conditions in steel mills here have been unfavorable for some time, there is said to be little or no evidence of dissatisfaction among workers.

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	18.75
Copper, hot rolled	22.75
Lead, full sheets (cut ¼c more)	10.00
Zinc (100-pound base)	10.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.50
SEAMLESS TUBES	
Yellow brass (high)	23.62½
Copper	24.50
RODS	
Yellow brass (high, free turning)	16.50
Naval brass	19.25
WIRE	
Copper, small lots	15.62½
Yellow brass (high)	19.25

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25 to 9.50
Chicago	9.25 to 9.50
Cleveland	9.50 to 10.00
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.25 to 7.50
ZINC	
New York	3.50 to 3.75
Cleveland	3.25
HEAVY COPPER AND WIRE	
New York	11.50 to 11.75
Boston	10.75 to 11.25
Chicago	10.50 to 11.00
Cleveland	11.50 to 11.75
RED BRASS BORINGS	
New York	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	10.00 to 10.25
Chicago	9.50 to 9.75
Cleveland	10.00 to 10.25
LIGHT BRASS	
Boston	6.00 to 6.50
Chicago	6.25 to 6.50
Cleveland	5.50 to 5.75
ALUMINUM	
Clippings, Cleveland	17.00
Borings, Cleveland	9.00
Cast, Cleveland	12.00
Cast, Boston	12.00 to 12.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 18.00
Brass ingot, 85-5-5-5	12.25 to 12.50

Coke By-Products

Better Demand Brings Increasing Firmness in Light Oils

New York, Jan. 31.—Greater firmness is reflected in light oil distillates, due to increasing demand. Toluol is in particularly good demand. Seasonal contracting for naphthalene for spring shipment continues more active, with flakes holding at 5 and 5½ cents, works, and balls at 6 to 6½ cents.

Sulphate of ammonia is unchanged at $2.30 to $2.35, delivered, for material for domestic account, and nominally at the same levels, although on a port basis, for export account. Virtually all buying is by the fertilizer industry, a number of the manufacturers rounding out long-term contracts.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.23	.....
90 per cent benzol	0.23	.....
Toluol	0.35	.....
Solvent naphtha	0.35	.....
Commercial xylol	0.36	.....
Phenol	0.19 to 0.20	.....
Per Pound at Producers' Plants		
Naphthalene flakes	0.05 to 0.05½	
Naphthalene balls	0.06 to 0.06½	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.30 to $2.35	

Mercury $123 to $124

New York, Jan. 31.—Quicksilver has recovered some of its recent weakness and is $123 to $124 a flask.

Swedish manufacturers will soon make their first shipment of locomotives to Turkey.

Warehouse

Strengthening Prices From Mills Reflected in Firming Jobber Levels—Sheets Advanced in New York—Sales Volume Well Maintained

INCREASING strength is marked in warehouse prices. New York and Pittsburgh jobbers report slight advances following recent increases in mill prices. January shipments generally were heavier than in December and in some cases were larger than January, 1927.

St. Louis distributors report steady improvement in business. In anticipation of a continuance of this betterment, warehousemen are augmenting and filling out their stocks.

The New York warehouse market is featured by higher prices on sheets. Following some of the sharpest competition in that district in three years on certain descriptions, prices now are higher and show a further upward tendency. On prime galvanized sheets, 4.70c appears representative for New York and Brooklyn and 4.95c for the Newark-Jersey City district. Black sheets have firmed to around 4.10c, for New York and Brooklyn, and possibly 20 points higher for Newark and Jersey City.

With marked improvement in demand compared with December, Pittsburgh district warehouses are stiffening their quotations and gradually are removing preferential prices. This applies particularly to hot-rolled bars. The recent mill advance on bar, plate and shape prices has made warehouse levels firmest in three months. Reinforcing bars are quoted at 2.90c to 3.175c. The event of the week is the advance in wire products, black and galvanized wire going from 3.00c to 3.10c. One seller is quoting 3.15c.

Detroit warehouse business in iron and steel shows a slight improvement in volume over December and a fair increase in number of orders over last January. Automotive demand is expanding moderately. The building trades will shortly begin to show seasonable improvement. Users continue to buy on a hand-to-mouth basis.

Steel sheet jobbing is showing decidedly more activity in the Chicago district. Demand for finished steel lines generally is expanding, particularly since the mills are unable to give prompt delivery in bars, shapes and plates. Prices are steady.

Large Philadelphia jobbers have adopted quantity differentials on steel and iron bars. The new base is 2.40c, delivered locally on one ton or more, plus 15 cents per 100 pounds on 1500 to 1999 pounds; 30 cents on 1000 to 1499 pounds; 50 cents on less than 1000 pounds. Thus bar prices now are 2.40c to 2.90c, depending upon quantity.

Jobbing business in the Cleveland territory generally is spotty but better. Warehouses supplying the general manufacturing trade showed marked improvement in the number of orders and quantity of business in January.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.50c
Los Angeles	3.40c
New York	3.24c
Philadelphia	2.40c to 2.90c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.50c
New York	2.80c to 3.24c
Philadelphia	2.40c to 2.90c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	2.60c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.00c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.50c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.30c to 2.80c
Pittsburgh	2.90c to 3.175c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Los Angeles	3.40c
New York	3.34c
Philadelphia	2.40c to 2.80c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Los Angeles	3.40c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.40c to 2.80c
Phila., 3/16-in.	2.50c to 3.00c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

No. 10 BLUE ANNEALED SHEETS

Baltimore	3.10c to 3.66c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Los Angeles	3.85c
New York	3.79c to 3.89c
Portland	4.00c
Philadelphia	3.15c
Pittsburgh	3.10c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

No. 24 BLACK SHEETS

Baltimore	3.60c to 4.30c
Boston	5.00c
Buffalo	4.20c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	4.10c
Philadelphia	4.15c
Pittsburgh	3.75c
Portland	4.90c
San Francisco	4.80c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.45c
Boston	5.85c
Buffalo	5.05c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.50c
Detroit	4.90c
Ft. Worth	5.75c
Los Angeles	5.30c
New York	4.70c
Philadelphia	5.00c
Pittsburgh	4.60c
Portland	5.65c
San Francisco	5.35c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.25c to 4.06c
Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.25c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.50c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore	3.25c	3.75c
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	3.80c	3.80c
Philadelphia	3.25c	3.75c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	6.00c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit	5.80c
New York	5.00c
Philadelphia	4.75c†

*Net base, straightening, cutting, boxing one ton or more. †Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

Coast Consuming Well

Fairly Large Tonnages Being Booked—Bar Sales Much Above Year Ago—Plates and Shapes Slightly Less

SAN FRANCISCO, Jan. 28.—(*By Air Mail*)—Placing of 670 tons of structural shapes for an overhead crossing in Seattle, booked by the Hofius Steel & Equipment Co. and 800 tons of merchant bars, bands, angles, plates and shapes by the Pacific Fruit Express Co. to unnamed interests are the largest of the week.

Pig Iron and Coke

Demand for pig iron is restricted to spot sales and small lots. One prominent importer of foundry pig iron and coke has a shipment of several thousand tons of English coke enroute. No change in prices is noted.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24 25
*Indian	24.00 to 25 00
*Dutch	24.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Concrete bar awards the past week aggregated 944 tons, bringing the total for the first four weeks to 13,106, compared with 3334 tons for the corresponding period in 1927. Included were 475 tons of merchant bars and angles for the Pacific Fruit Express Co., placed with unnamed interests and 200 tons of reinforcing bars for a girl's dormitory in Berkeley, booked by the Steel Service Co. New inquiries are limited to miscellaneous small lots of 10 to 30 tons.

Demand for hoops and bands is not large and domestic producers are confronted with keen foreign competition. Recent sales in the northwest were at 2.25c c.i.f. duty paid Seattle, for 1¼ and 1½ by 18-inch material. This c.i.f. price on foreign material includes all extras, which is considerably less than the Pittsburgh base or equivalent price.

Pending plate business is confined to small lots. Fabricators, however, are encouraged that a number of pipeline projects will shortly come up for figures. Awards so far this year aggregate 2025 tons, compared with 4550 tons for the same period in 1927. No change in prices is noted, 2.25c c.i.f. continuing to prevail.

Structural shape awards this week totaled 1052 tons, bringing the aggregate for the year to 8794 tons, compared with 9740 tons for the same period last year. Among awards of the weeks were the Argos Crossing in Seattle, involving 670 tons, and 180 tons of plain material for the Pacific Express Co. Pending business aggregates close to 20,000 tons. On plain material all producers are holding firm to 2.35c c.i.f.

Other Finished Material

During the past week only one award of over 100 tons of cast iron pipe was reported. R. H. Downer, San Diego, secured the general contract for 155 tons at San Diego. Several fair sized jobs are up for figures, and new inquiries include 261 tons for Pasadena, Calif. Bids were opened during the past week on 264 tons for San Diego. An award is expected next week of 650 tons of line pipe for the Petroleum Corp., Los Angeles, for its new plant at Richmond.

The Southern Pacific Co., San Francisco, has placed 28,000 kegs of track spikes and 3200 kegs of track bolts with unnamed interests. This calls for 3210 tons of material. No action has been taken on its inquiry for 4500 tons of tie plates. Phoenix, Ariz., has taken bids on 1500 tons of 70 to 75-pound standard tee rails. No other inquiries of importance are current.

Higher Fencing, Bale Tie Rates Canceled

Washington, Jan. 31.—Proposed increased proportional rates on iron and steel fencing material and hay bale ties, in straight or mixed carloads, from east bank upper Mississippi river crossings to Des Moines, Fort Dodge and Perry, Iowa, when originating at designated points in Indiana, and cancellation of application of the present proportional rates on traffic originating at other points east of the Illinois-Indiana state line, have not been found justified by the interstate commerce commission and the suspended schedules have been ordered canceled.

Coal Miners' Wage Trend Is Downward

Bulletin No. 454 of the bureau of labor statistics presents average earnings and hours of labor in 1926 by occupations and states in bituminous coal mining in the United States. Earnings of miners and loaders, the basic and most important occupations in the industry, based on total hours in mines including time for lunch and time of travel decreased from an average of 84.5 cents per hour in 1922 to 77.7 cents in 1924, and to 74.9 cents per hour in 1926. Earnings per day based on hours in mine decreased from an average of $7.03 in 1922 to $6.60 in 1924, and to $6.46 in 1926. The 1926 figures for miners and loaders represent 96,010 employes.

Hours of miners and loaders, based on total time in mines, increased from an average of 8.3 per day in 1922 to 8.5 in 1924 and to 8.6 per day in 1926. The miners and loaders in the half-month in 1926 worked an average of 9.5 starts (days). Based on total time in mines they worked an average of 82.2 hours in the half month and earned an average of $61.61 in the half month. Annual earnings are not available, but had they worked the number of days, 214, in the year that the United States bureau of mines reported the mines in operation, and at the same average per start or day as in half-month in 1926, their average annual earnings would have been $1382.

Wins Billet Rate Protest

Washington, Jan. 31.—George M. Curtis, attorney-examiner of the interstate commerce commission, has prepared a proposed report in which he finds class rates on standard and less than standard lengths of square round-cornered iron and steel billets, in mixed carloads, are applicable but unreasonable and unduly prejudicial to the extent they exceed applicable commodity rates on billets weighing 150 pounds and over in straight carloads. Reparation is recommended. This is in the case of the Carnegie Steel Co. against the Pennsylvania railroad.

Lifts Machinery Duty

Washington, Jan. 31.—The Polish customs regulation whereby a reduction of 80 per cent from the normal tariff is granted to machinery and apparatus not manufactured in Poland, but constituting the complete equipment or part of equipment for a newly established factory or department thereof, has been reinstituted and will remain in effect until March 31, 1928, according to advices from assistant Trade Commissioner L. J. Cochrane, Warsaw.

Would Tax Foreign Parts

Washington, Jan. 31.—Representative Bacon, of New York, has introduced a bill in the house "to prohibit the importation free of duty of foreign made parts for use on American-made machines." The bill has been referred to the house committee on ways and means.

Annual Earnings

Of U. S. Steel Corp. Decline; Quarter Return Lowest

Total earnings of the United States Steel Corp. in 1927 were $164,246,545 compared with $199,004,741 in 1926 and $165,188,090 in 1925. The reduction of more than 17 per cent in earnings reflected the decline in iron and steel output and lower price levels last year. Net income dropped to $87,845,456 in 1927 compared with $116,584,088 in the preceding year. The final surplus after dividends for the year was $12,812,134. The comparative income account for three years follows:

	1927	1926	1925
Net earn..	$164,246,545	$199,004,741	$165,188,090
Depreciation reserve	47,363,888	53,152,885	45,389,056
Sinking fund	11,515,669	11,049,836	10,623,626
Interest ..	16,674,175	17,228,668	17,761,389
Premium bonds redeemed	1,398,215	1,242,984	1,102,769
Adjusted credit ..	550,859	253,720	122,041
Net inc...	$ 87,845,456	$116,584,088	$ 90,433,292
Preferred divs.	25,219,677	25,219,677	25,219,677
Common divs.	49,813,645	35,581,173	25,415,125
Surplus	12,812,134	55,783,238	29,632,442
Special approp.	.....	30,000,000	25,000,000
Final surplus	$ 12,812,134	$ 25,783,238	$ 4,632,442

Fourth quarter earnings were the lowest of the year. They totaled $31,247,529 compared with $41,373,831 in the preceding quarter and $53,502,525 in the corresponding quarter of 1927. After dividends for the quarter there was a deficit of $4,963,499. Earnings by months show heavy declines compared with one year ago. The November net was the smallest for the period with a total of $9,625,932, or about one half of the net of $18,144,655 in November, 1926. The October net was $11,869,470 and that for December $9,753,127. The comparative income follows:

	4th quarter 1927	3rd quarter 1927	4th quarter 1926
Net earns.....	$31,247,529	$41,373,831	$53,502,525
Depreciation reserve..	10,623,859	12,389,587	15,201,474
Sinking fund	2,940,068	2,907,108	2,786,745
Interest	4,115,558	4,133,629	4,255,608
Premium bonds redeemed..	323,967	358,082	361,734
Adjusted credit	550,858	.....	253,720
Net inc.....	$13,794,833	$21,585,425	$31,150,684
Preferred divs.	6,304,920	6,304,919	6,304,919
Common divs.	12,453,412	12,453,411	8,895,294
Deficit	$ 4,963,499	*$ 2,827,095	*$15,950,470

*Surplus.

At a meeting held at Boston recently, the New England Foundrymen's association elected the following officers for 1928: President, Charles M. Miller, Universal Winding Co., Providence, R. I.; vice president, Carl H. Neumann, Union Mfg. Co., New Britain, Conn.; treasurer, George H. Gibby, Gibby Foundry Co., East Boston, Mass.; and secretary, Fred M. Stockwell, Barbour-Stockwell Co., Cambridge, Mass.

Manganese Ore Shipments Show Decrease

Domestic shipments of manganese ore containing 35 per cent and more of metallic manganese totaled in 1927 approximately 43,600 long tons, valued at $1,142,000, according to the bureau of mines. This is a decrease of 6 per cent from 1926. Shipments of the metallurgical ore in 1927 amounted to 26,000 tons, valued at $416,000, while those of 1926 were 26,530 tons, valued at $379,893. Shipments of chemical ore in 1927 totaled 17,600 tons, valued at $726,000, and those of 1926 were 19,728 tons, valued at $848,770.

During the first 11 months of 1927 the metallic content of imported ore was 276,823 tons. The gross tonnage was 554,382 tons. This includes importation from Cuba. Assuming that the imports for December were at the same rate as during the first 11 months, the total importation would be approximately 605,000 tons, compared with the total imports of 738,000 long tons in 1926.

For the first 11 months of 1927 the manganese content of ferromanganese imported was 25,684 tons, compared with 36,521 tons for the corresponding period of 1926. Shipments of domestic ore containing from 10 to 35 per cent of manganese in 1927 were 134,000 tons, valued at approximately $609,000 against 364,312 tons, valued at $1,179,429, in 1926. Domestic shipments of ore containing from 5 to 10 per cent of manganese in 1927 were 1,317,000 tons, valued at $3,306,000, compared with 835,412 tons, valued at $1,934,381, in 1926.

The apparent outstanding features of the year have been the increase in the domestic manufacture of spiegeleisen and the increased production and consumption, relative to the production of steel, of ores having a low metallic manganese content.

Mail Lost at Cleveland

SOME incoming mail of all classes was destroyed or damaged by fire in a downtown distributing depot at Cleveland, Jan. 27.

The postoffice department suggests that mail which may have arrived at Cleveland between 6 and 11 p. m., Jan. 27, be checked or duplicated to avoid inconvenience.

Pig Iron Shipments Heavy

(*Concluded from Page* 345)

bringing a larger total to local dealers. One seller reports booking 1000 tons last week in one order, and two 500-ton lots Monday. Another seller booked 1000 tons in small amounts. Lake furnace prices are firmer at $16.50 to $17. The Western Gas Construction Co., Fort Wayne, Ind., is believed to have placed 500 tons with a lake furnace.

Chicago, Jan. 31.—First quarter contract business in northern pig iron is being closed up gradually, and active spot buying also is reported. Shipments are showing a slight increase over the heavy rate noted through January. Many buyers are turning their attention to second quarter business. A number of heavy tonnages were sold in the past week in the Milwaukee district. It is understood plans to collect orders for a cargo of iron from the East in second quarter have been abandoned because of the prices now asked for eastern iron. Furnaces in this district are holding to $18.50, base, Chicago.

St. Louis, Jan. 31.—Buying of pig iron has subsided to the smallest volume this year. The melt has increased slightly. Sales reported in the past week total 2500 tons, of which 2100 tons was booked by the leading local producer, the rest being Birmingham iron. An Illinois implement maker took 750 tons of foundry iron for delivery through first quarter, and 500 tons of malleable was bought by an east side interest. Shipments of basic iron continue heavy. Prices are steady.

Birmingham, Ala., Jan. 31.—Pig iron consumers are slow in accepting shipments on contracts placed in the past several weeks. Production will be reduced shortly by blowing out Sloss-Sheffield Steel & Iron Co.'s No. 1 city furnace. A little later the Gulf States Steel Co. will blow out its furnace. They are to be rebuilt on a larger scale. During February the Tennessee Coal, Iron & Railroad Co. will blow in one of its 600-ton stacks at Fairfield.

Philadelphia, Jan. 31.—Pig iron sales in this territory in the past week aggregated 40,000 to 50,000 tons involving all grades. This is the heaviest week's business in the district in a long time. The price appears firmly established at $19.50, base, eastern Pennsylvania furnace. Basic is unchanged at $19.25 to $19.75, delivered eastern Pennsylvania. Bessemer now is $21.50 to $22, delivered, Philadelphia.

New orders for steel boilers in November totaled 1221, as reported to the department of commerce by 72 manufacturers.

15 Furnaces Resume in January

Increased Operations Bring Pig Iron Total to 2,840,716 Gross Tons, Against 2,698,208 Tons in December—Average Daily Rate of 91,636 Tons Is Highest Since Last September

REFLECTING the improvement in blast furnace operations during the past month, production of coke pig iron in January totaled 2,840,716 gross tons, according to an estimate compiled by IRON TRADE REVIEW from reports received by telegraph. January was the first month to show improvement since production started on the down grade last April, and the gain was sufficient to bring the rate of operations up to a point almost equal to that of last September. During the month, active blast furnaces increased from 169 to 184, the net increase being 15 furnaces.

Compared with the 2,698,208 gross tons of pig iron made in December, the January output of 2,840,716 tons was an increase of 142,508 tons. Both January and December were months of 31 days. Average daily production was 91,636 tons, against 87,039 tons in December. The increase was 4597 tons per day, or 5.28 per cent. The January rate was the best since last September when iron was being produced at the rate of 92,750 tons per day. In January, 1927, iron was made at the rate of 100,043 tons per day.

MONTHLY PRODUCTION

	1928	1927	1926	1925
Jan.	2,840,716	3,101,346	3,319,789	3,372,207
Feb.	.....	2,940,604	2,923,850	3,214,067
Mar.	.....	3,482,107	3,458,171	3,571,422
April	.....	3,424,377	3,438,805	3,211,235
May	.....	3,391,067	3,477,820	2,933,907
June	.....	3,089,726	3,232,478	2,679,045
July	.....	2,954,625	3,224,663	2,665,262
Aug.	.....	2,950,674	3,200,723	2,707,171
Sept.	.....	2,782,500	3,163,269	2,725,885
Oct.	.....	2,812,015	3,334,206	3,017,889
Nov.	.....	2,661,863	3,237,992	3,023,257
Dec.	.....	2,698,208	3,089,175	3,249,057
Total	2,840,716	36,289,112	39,100,941	36,370,404

On the last day of the month, 184 blast furnaces were in operation, against 169 on Dec. 31. Of the merchant class, 2 were blown in and 2 blown out or banked. Of the non-merchant or steelworks class, 17 were placed in operation and 2 were blown out.

In the accompanying box on this page, IRON TRADE REVIEW presents for the first time a new index of ironmaking operations. Based upon a coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926, as compiled by the American Iron and Steel Institute, the January production represented 65.3 per cent of capacity. Operations in December were at the rate of 61.8 per cent. The rate for January one year ago was 71.2 per cent.

Rate of Operations

(Relation of Production to Capacity)

	1928*	1927*
January	65.3	71.2
December	.....	61.8
November	.....	63.0
October	.....	64.5
September	.....	65.9
August	.....	67.6
July	.....	67.7
June	.....	73.2
May	.....	77.7
April	.....	81.2
March	.....	79.8
February	.....	74.7

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926, as compiled by American Iron and Steel institute.**

Stacks blown in during the month were: In Ohio: Haselton No. 4, Republic Iron & Steel Co.; Ohio Nos. 1 and 4, Carnegie Steel Co.; one River. Corrigan-McKinney Steel Co. In Pennsylvania: Bethlehem E, Bethlehem Steel Co.; Edgar Thomson F and J, Duquesne No. 2, Carrie Nos. 3 and 4, and Farrell No. 3, Carnegie Steel Co. In New York: Donner No. 1, Donner Steel Co.; one Port Henry, Witherbee-Sherman & Co. In Indiana: Madeline No. 2, Inland Steel Co.; three Gary, Illinois Steel Co. In Illinois: Two South Works, Illinois Steel Co.

Stacks blown out during the month were: In Pennsylvania: Bethlehem F, Bethlehem Steel Co. In New York: Buffalo A, M. A. Hanna Co. In Alabama: Bessemer No. 1, Tennessee Coal, Iron & Railroad Co. In Wisconsin: One Mayville, Youngstown Sheet & Tube Co.

JANUARY PIG IRON

	Number in blast last day of month		Totals	
	Jan.	Dec.	Dec.	Jan.
Ohio	41	37	653,284	623,304
Pennsylvania	59	53	853,346	809,658
Alabama	17	18	223,890	228,093
Virginia	1	1	6,737	6,897
New York	14	13	189,215	186,449
New Jersey	.....	.....	.....	.....
Illinois	18	16	329,098	301,392
Colorado	3	3		
Indiana	15	11	400,463	356,380
Maryland	5	5		
Wisconsin	.....	1		
Kentucky	1	1		
Massachusetts	1	1		
Tennessee	1	1	73,885	77,232
Utah	.....	.....		
West Virginia	2	2		
Michigan	4	4		
Minnesota	2	2	81,600	80,994
Missouri	0	0		
Texas	0	0		
Spiegel and ferro all states	....	....	29,198	27,809
Total	184	169	2,840,716	2,698,208

Predicts Great Advance in Merchandising Methods

Pittsburgh, Jan. 31.—A prediction that "the outstanding advances in business over the next ten years will be in improved merchandising and distributing methods," was voiced last night by Eugene G. Grace in speaking before the Western Pennsylvania Engineering society. "The Engineer as a Business Executive", was the subject of the address by the president of the Bethlehem Steel Corp. He said "sound judgment" is the essential quality of all business success, and sound judgment can come only through accurate observation.

AVERAGE DAILY PRODUCTION

	1928	1927	1926	1925	1924
Jan	91,636	100,043	107,039	108,781	97,273
Feb.	.....	105,021	104,423	114,788	105,987
Mar.	.....	112,326	111,554	115,207	111,787
Apr.	.....	114,146	114,627	107,041	107,537
May	.....	109,388	112,187	94,642	84,515
June	.....	102,991	107,749	89,301	67,427
July	.....	95,311	104,021	85,976	57,531
Aug.	.....	95,183	103,249	87,328	60,741
Sept.	.....	92,750	105,442	90,862	68,454
Oct.	.....	90,710	107,555	97,351	79,419
Nov.	.....	88,728	107,933	100,775	83,832
Dec.	.....	87,039	99,651	104,808	95,367
Ave.	91,636	99,422	107,126	99,645	84,908

"If I was to prescribe one process in the training of men as a fundamental to success in any direction," he stated, "it would be thorough-going training in the habit of accurate observation. It is a habit which every one of us should be seeking to perfect.

"Those of us who are engaged in large business undertakings know there is nothing of more importance in enabling us to make wise decisions on policies which come before us every day than our ability to obtain accurate information from the men under us."

He made this suggestion to the educational authorities of the country: "From the moment children begin their studies in the grammar schools, give them daily some training in accurate observation. Even in our colleges I think there should be regular and definite exercise in practice of observation."

Imports Gain; Exports Off

December Receipts 3000 Tons Higher Than in November While Total For 1927 Shows Recession—Though Shipments Drop 9000 Tons in December, Annual Figures Increase 15,000 Tons Over 1926—Scrap Exported Totals 22,668 Tons

EXPORTS of iron and steel products in December totaled 168,428 tons, somewhat lower than the November total of 177,928 tons, according to the iron and steel division of the department of commerce. Failure of many products to keep up with the tonnage recorded in November caused the decline, pig iron exports for one totaling only 3079 tons in December, compared with November's 8090 tons. Scrap was the largest single item exported in December, totaling 22,668 tons compared with 15,392 tons in November. December imports, on the other hand, gained, totaling 64,188 tons compared with 61,882 tons in November. Plates and shapes both advanced over the previous month's receipts, contributing to the increase.

The year's foreign trade balance was considerably more favorable to the United States. Exports in 1927 totaled 2,180,969 tons, making a gain of almost 15,000 tons over the 1926 figure which was 2,167,213 tons. Tin plate proved to be the principal product exported during 1927, a total of 254,131 tons being sent to foreign purchasers. Imports for 1927 totaled 750,467 tons, compared with 1,110,049 tons in 1926. Structural shapes was the heaviest import in 1927, with a total of 161,848 tons. Pig iron imports, which in 1926 totaled 445,773 tons, were only 133,068 tons in 1927.

North and Central America and the West Indies were the best markets for exports in December, followed by the Far East, with about half the tonnage recorded by the former. Belgium, sending 16,118 tons of iron and steel products, led the other countries as a source of American imports in December. Germany was second, with 8404 tons.

France with a total of 131,946 tons of iron and steel sent to the United States in 1927 is the only country to show fair gain over the total for 1926. Austria's total increased somewhat, also, while a few slight gains were noted for other countries.

Of the 15,717 tons of steel rails exported from the United States in December, Central America received 2931 tons and Colombia 2338 tons. Dutch East Indies took 1051 tons of galvanized sheets out of the total of

IMPORTS AND EXPORTS

Gross Tons

	—1927—		—1926—	
	Imports	Exports	Imports	Exports
Jan.	63,404	215,235	79,067	174,585
Feb.	49,451	166,128	100,213	157,187
March	61,872	171,094	93,107	169,438
April	60,374	192,339	107,636	194,449
May	79,814	202,708	108,781	173,418
June	69,017	184,364	124,215	159,506
July	61,112	190,502	82,411	194,717
Aug.	68,386	175,636	91,578	171,588
Sept.	58,464	166,352	85,484	182,071
Oct.	52,503	170,255	81,830	172,070
Nov.	61,882	177,928	81,259	219,830
Dec.	64,188	168,428	75,559	198,189
Total	750,467	2,180,969	1,110,049	2,167,213

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From:	Dec.	Nov.
Netherlands	3,451	2,882
Sweden	27	502
United Kingdom	2,741	3,173
Canada	36	.....
British India	8,044	9,245
Germany	.....	340
Total	14,299	16,142

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From:	Dec.	Nov.
Germany	321	.....
United Kingdom	83	62
Canada	6,405	3,007
Cuba	29,500	22,500
Chile	61,500	141,300
Australia	5,000	.....
Sweden	20,178	.....
Newfoundland	8,850	.....
Algeria and Tunis	.....	26,599
Brazil	.....	6,100
Total	131,837	199,568

ORIGIN OF MANGANESE IMPORTS

(Concentrates)

Gross Tons

From:	Dec.	Nov.
Germany	5	.....
Soviet Russia in Europe	15,161	12,022
Brazil	10,160	9,912
Canada	.....	57
British India	2,691	4,748
British West Africa	2,834	.....
Total	30,851	26,739

ORIGIN OF FERROMANGANESE IMPORTS

Gross Tons

From:	Dec.	Nov.
Norway	2,641	.....
United Kingdom	1,441	743
Canada	4,252	1,706
France	.....	4
Sweden	.....	16
Total	8,334	2,469

ORIGIN OF IMPORTS

Gross Tons

From:	Cast iron pipe	Steel bars	Steel scrap	Ingots blooms, etc.
Cuba	395	.....	53	.....
Canada	76	9	3,316	.....
Peru	152	.....	.....	.....
Belgium	.....	3,824	.....	516
France	.....	692	.....	1,282
Germany	.....	1,954	.....	.....
Netherlands	.....	1	.....	.....
Sweden	.....	867	45	107
United Kingdom	.....	118	.....	8
Norway	.....	15	11	.....
Austria	.....	618	.....	2
Czechoslovakia	.....	19	.....	2
Denmark	.....	.....	21	.....
Other countries	287	.....	.....	.....
Total	910	8,117	3,466	1,917

IMPORTS OF IRON AND STEEL

Gross Tons

Item	Dec. 1927	Nov. 1927	January thru December 1927	1926
Pig iron	14,299	16,142	133,068	445,773
Ferromanganese and alloys (1)	8,334	2,469	34,023	43,932
Ferrosilicon (2)	788	308	7,753	13,125
Ferrochrome(3)	....	20	435	525
Scrap	3,462	6,404	60,203	86,725
Iron slabs	....	....	91	348
Steel ingots, blooms, billes, etc	1,917	1,187	13,702	30,825
Steel bars	8,117	5,654	91,497	103,473
Iron bars	822	230	4,220	5,623
Wire rods	1,075	2,812	17,990	10,074
Hoops, bands and scrolls	2,077	2,113	33,773	28,407
Boiler and other plate	544	241	4,035	4,946
Sheets, skelp and saw plate	1,338	1,226	15,804	10,671
Tin plate	10	4	1,064	2,160
Structural shapes	14,529	14,479	161,848	121,099
Rails and splice bars	641	343	16,145	62,776
Cast iron pipe	3,112	4,042	81,769	83,873
Other pipe and tubes	1,725	2,919	50,088	31,073
Barbed wire	261	32	4,027	3,056
Round iron and steel wire	296	294	3,962	4,330
Steel telegraph and telephone wire	3	..	35	1,128
Flat wire and strip steel	144	138	2,543	3,678
Wire rope and strand	150	107	2,178	2,492
Other wire	17	19	1,145	1,485
Nails, tacks and staples	224	286	5,665	5 354
Bolts, nuts, rivets and washers	26	19	356	360
Castings and forgings	277	394	3,048	2,738
Total	64,188	61,882	750,467	1,110,049

(1) Manganese content
(2) Silicon content
(3) Chromium content

IMPORTS BY COUNTRIES OF ORIGIN

Gross Tons

	Dec. 1927	January through Dec. 1927	1926
Austria	1,815	2,761	794
Belgium	16,118	200,257	230,852
Czechoslovakia	22	4,890	2,230
Denmark	21	172	2,409
France	6,535	131,946	131,894
Germany	8,404	129,412	270,769
Italy	4	378	1,041
Netherlands	3,549	31,369	91,431
Norway	3,308	10,350	19,282
Poland and Danzig	538	7,273	1,877
Sweden	2,641	22,369	28,297
Switzerland	2	2	51
United Kingdom	5,276	55,604	125,622
Canada	7,855	76,726	93,256
Cuba	53	6,196	10,418
British India	8,044	67,152	81,938
Japan	3	29	22
Turkey in Europe	.....	2	28
Mexico	.....	239	8,131
Spain	.....	30	3
Guatemala	.....	32	.....
Virgin Islands	.....	31	3
Hongkong	.....	8	1
Brazil	.....	7	.....
Australia	.....	1	.....
Esthonia	.....	54	.....
Honduras	.....	4	144
Panama	.....	19	7,748
French W. Indies	.....	120	1
Persia	.....	52	.....
Argentina	.....	1	.....
Other countries	.....	.....	2,848
Total	64,188	747,486	1,111,090

9574 tons. Canada and Japan received most of the steel scrap shipment in December, 10,778 tons going to the former and 10,523 tons to the latter.

Japan also received a good tonnage of black steel sheets, as did Canada. Tin plate exports in December totaled 15,856 tons, of which amount Japan received 5743 tons. Canada was shipped 12,028 tons of plates not fabricated while Soviet Russia received 1808 tons.

EXPORTS OF IRON AND STEEL

Gross Tons

Product:	Dec. 1927	Nov. 1927	January through Dec. 1927	1926
Pig iron, not including ferro-alloys	3,079	8,090	50,992	25,208
Ferromanganese and spiegeleisen	75	27	1,641	793
Scrap	22,668	15,392	238,303	104,738
Ingots, blooms, skelp, etc	2,610	15,359	98,613	100,956
Iron bars	94	152	3,872	5,171
Steel bars	7,983	10,642	111,121	137,770
Alloy steel bars	700	622	6,149	4,946
Wire rods	1,448	620	16,128	19,646
Plates	15,444	11,794	139,632	138,258
Galvanized sheets	9,574	10,458	152,175	178,636
Black steel sheets	8,181	9,614	152,497	175,740
Black iron sheets	2,506	978	17,163	19,252
Hoops, bands and strip steel	2,751	4,136	43,160	46,912
Tinplate, terneplate, etc	15,856	18,121	254,131	250,782
Structural shapes, plain material	14,310	13,846	148,069	157,121
Structural materials, fabricated	4,811	9,236	68,637	77,853
Metal lath	416	386	4,666	4,378
Steel rails	15,717	10,799	175,539	187,557
Rail fastenings, switches, frogs, etc	4,383	2,835	35,806	41,771
Boiler tubes and welded pipe	18,154	16,786	248,415	275,454
Malleable iron screwed pipe fittings	828	976	10,061	12,368
Castironscrewed pipe fittings	702	742	7,229	10,267
Cast iron pressure pipe and fittings	396	1,124	11,567	13,118
Cast iron soil pipe and fittings	514	886	9,168	10,726
Plain wire	2,891	3,517	35,482	31,311
Barbed wire and woven wire fencing	4,128	4,421	52,393	50,718
Wire cloth and screening	167	146	2,268	1,989
Wire rope	398	480	4,569	4,779
Insulated wire and cable	21	37	494	738
Other wire and manufactures of	855	612	9,542	8,982
Wire nails	1,369	1,092	9,993	11,743
Nails, other than wire	800	534	7,558	7,018
Tacks	74	58	895	906
Horseshoes	54	39	563	661
Bolts, nuts, rivets, except track	1,196	979	12,218	13,220
Car wheels and axles	827	893	16,661	16,679
Iron castings	1,525	800	11,727	8,838
Steel castings	572	351	7,004	7,566
Forgings	351	348	4,868	2,644
Total	168,428	177,928	2,180,969	2,167,213

DESTINATION OF EXPORTS

Gross Tons

Country of Destination	December 1927	January through December 1927	1926
North and Central America, W. Indies	81,033	1,088,577	1,107,964
Canada and Newfoundland	61,787	832,984	834,858
Cuba	5,006	92,486	94,708
Mexico	6,295	81,656	100,837
Guatemala	333	6,124	10,125
Salvador	3,452	7,140	16,277
Panama	1,186	18,881	9,015
Other British W. Indies	629	12,384	10,580
Other W. Indies	944	23,700	17,272
Other Central America	1,401	13,222	14,292
South America	27,713	348,899	373,102
Argentina	6,915	82,380	60,105
Brazil	3,492	70,635	62,542
Chile	4,917	44,641	61,642
Colombia	5,192	59,080	71,142
Peru	1,776	32,207	37,819
Venezuela	3,486	44,918	68,116
Other S. America	1,935	15,038	11,736
Europe	9,785	197,326	144,154
France	173	4,586	10,393
Italy	1,763	41,832	23,486
Rumania	749	2,457	2,591
Russia	6	8,102	3,073
Turkey in Europe	77	3,711	3,032
United Kingdom	4,316	66,915	68,809
Other Europe	2,701	69,723	32,770
Far East	47,127	526,268	523,833
Australia	1,670	26,672	33,353
British Malaya	723	8,444	15,520
China	4,748	53,843	46,054
Dutch E. Indies	1,912	35,259	41,028
India	1,792	28,215	37,097
Japan and Chosen	27,054	278,207	260,361
Kwangtung	344	18,969	20,247
Philippine Islands	6,702	63,334	57,554
Other Asia and Far Eastern Markets	2,182	13,325	12,619
Africa	2,770	19,899	18,160
British S. Africa	2,442	10,403	9,393
Egypt	86	4,554	5,761
Portuguese E. Africa	61	3,827	2,299
Other Africa	181	1,115	707

DESTINATION OF DECEMBER IRON AND STEEL EXPORTS

Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin, terne plate	Steel sheets, black	Barbed wire	Steel bars	Steel scrap
Argentina	.....	615	2	1,711	.....	912	.....	.....
Australia	.....	166	208	.....	158	18	.....	.....
Brazil	776	789	1	218	.....	392	91	.....
British India	.....	695	.....	.....	.....	.....	.....	.....
British S. Africa	.....	.....	.....	.....	.....	193	.....	.....
Canada	1,714	635	12,028	1,827	2,825	6	4,453	10,778
Central America	2,931	400	171	.....	24	323	311	.....
Chile	301	26	30	502	843	.....	.....	.....
China	2,319	88	.....	816	.....	.....	.....	348
Colombia	2,338	530	2	152	.....	377	.....	.....
Cuba	402	425	82	248	.....	284	234	.....
Dutch E. Indies	.....	1,051	.....	.....	.....	.....	.....	.....
Europe	.....	.....	41	.....	203	.....	62	.....
Germany	.....	.....	.....	.....	.....	.....	.....	2
Hongkong	.....	.....	.....	.....	.....	.....	.....	55
Italy	.....	.....	.....	639	.....	.....	.....	.....
Japan	914	171	943	5,743	3,296	.....	204	10,523
Mexico	1,055	531	16	894	68	580	51	685
Netherlands	.....	.....	.....	.....	.....	.....	.....	10
Norway	.....	161	.....	.....	.....	.....	.....	.....
Other Europe	.....	165	.....	214	.....	.....	.....	.....
Peru	52	.....	27	76	177	.....	91	.....
Philippine Islands	119	.....	.....	980	41	261	164	.....
Soviet Russia	.....	.....	1,808	.....	.....	.....	.....	.....
Union S. Africa	1,479	.....	.....	.....	.....	.....	.....	.....
United Kingdom	.....	.....	.....	.....	204	.....	1,380	267
Uruguay	.....	.....	.....	578	.....	.....	.....	.....
Venezuela	73	.....	.....	25	.....	.....	.....	.....
	15,717	9,574	14,245	15,856	8,181	3,844	7,983	22,668

Exports of Metalworking Machinery

(In number except where otherwise specified)

	December 1927	December 1926	January through December 1927	1926
Engine lathes	79	32	716	288
Turret lathes	31	17	280	156
Other lathes	39	47	444	622
Vertical boring mills and chucking machines	26	17	134	87
Thread-cutting and automatic screw machines	47	81	895	827
Knee and column type milling machines	32	15	239	209
Other milling machines	75	30	489	373
Disk type gear-cutting machines	6	....	46	12
Other gear-cutting machines	32	10	356	187
Vertical drilling machines	34	9	341	319
Radial drilling machines	10	6	97	71
Sensitive drilling machines	57	9	525	818
Other drilling machines	36	25	870	1,094
Metal-sawing and cutting-off machines	27	9	281	197
Shapers and slotters	41	11	363	556
Planers	3	2	40	16
External cylindrical grinding machines	67	43	717	505
Internal grinding machines	31	20	561	240
Metalworking tool-sharpening machines	34	47	788	880
Other metal-grinding machines, pounds	180,203	94,999	1,420,166	746,363
Sheet metalworking machines, pounds	837,109	120,108	5,635,289	6,116,584
Plate metalworking machines, pounds	54,637	6,440	1,067,632	419,812
Rod or wireworking machines, pounds	45,736	8,362	501,831	374,908
Forging machinery, pounds	615,646	392,016	4,939,602	5,996,273
Rolling-mill machinery, pounds	655,951	642,979	7,676,683	5,090,313
Foundry and molding equipment, pounds	1,138,412	763,304	6,899,907	6,865,180
Other power-driven metalworking machinery and parts, pounds	1,740,822	419,872	7,526,181	7,815,225
Hand or foot-operated metalworking machinery and parts, pounds	11,634	26,070	247,468	273,527
Pneumatic portable tools	2,103	1,481	20,146	17,743
Other portable metalworking machines, pounds	35,951	40,121	363,325	330,975
Chucks for machine tools	1,037	505	16,137	17,615
Reamers, cutters, drills, taps, dies and other metalworking tools, pounds	.....	270,371	.....	2,823,726

British Steel Trade Improving

Pig Iron Demand Also Better—Shipbuilding More Active—Other Construction Work Dull—American Consumers Inquire for Special Grades of Iron—German Works Well Booked—Belgians Take 2000-Ton Rail Order for Sweden

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Jan. 31.—(*By Cable*)—British iron and steel trade is improving, especially in the Middlesbrough district. Better demand is noted for pig iron at Barrow. Midland steelworks are occupied part time. Shipping is more active. Vickers Ltd. is employing 12,000 men in its shipbuilding and engineering departments. Other construction work is dull. The Metropolitan Carriage Co., Birmingham, has obtained an order for 50 cars for South Africa, valued at £170,000. The North British Locomotive Co. obtained an order for 39 locomotives. American consumers are inquiring for special grades of pig iron. Orders for galvanized sheets are improving. Tin plate demand is quiet; some attractive inquiries are coming from the Continent.

German steelworks are reported well booked. German interests have obtained a Yugoslav port contract valued at $525,000. Orders also have been booked for 15 locomotives for Siam.

Belgian prices are rising. Export demand is improving. Some attractive orders for wire and wire nails have been booked for delivery to the Far East. A contract for 2000 tons of rails has been placed for delivery to Sweden. French markets show more activity.

British and German Steel Exports at Low Rate

LONDON, Jan. 20.—(*European Staff Service*)—Export business in iron and steel is quiet, as is usually the case during the first half of January. Clearing of the situation in Germany has caused the speculative business which had developed in other countries to cease. Prices generally are firm and it is expected they will remain so because of the distinct signs of business revival in France and the possibility that German domestic prices may be substantially advanced, in view of the increased cost of production caused by the new regulations concerning hours and wages. Quiet conditions prevail in Great Britain, but the volume of export orders is expanding, while continental competition in the home market has not been so noticeable since the end of the year, as most continental works are well booked with orders. The report of the London Iron and Steel exchange states that many consumers may find it difficult to specify against the contracts they made in the expectation that German works would close down. In that case consumers believe that there will be a certain tonnage of second-hand material offered at prices below manufacturers' quotations.

British foundry pig iron at £3 5s ($15.70) per ton is about competitive with continental material, although some French and Belgian pig iron still is sold in Scotland. As much as £3 2s ($15) is quoted f.o.b. Antwerp, but business is done around £3 1s ($14.80). There is practically no market for French basic pig iron because the output is consumed in the makers' plants. British steel export trade is supported for a large part by the demand from the Far East, which has developed within recent weeks.

The outlook in France has much

(*Concluded on Page* 368)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, January 30	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$15.83	3 5 0*	$15.10	3 2 0	$15.10	3 2 0	$15.10	3 2 0
Basic	.....	.....	14.61	3 0 0	14.61	3 0 0	14.61	3 0 0
Basic-bessemer	17.05	3 10 0†	14.61	3 0 0	.....	2 19 0	14.61	3 0 0
Hematite, Phosphorus 0.02-0.05	17.05	3 10 0	21.81	555*	.....	.....	17.05	3 10 0
SEMIFINISHED STEEL								
Billets	$28.00	5 15 0	$21.55	4 8 6	$21.55	4 8 6	$21.18	4 7 0
Wire rods	47.48	9 15 0	26.79	5 10 0	26.79	5 10 0	26.79	5 10 0
FINISHED STEEL								
Standard rails	$37.74	7 15 0	$31.05	6 7 6	$31.05	6 7 6	$31.05	6 7 6
Merchant bars	1.58c	7 5 0	1.09c	4 19 6	1.09c	4 19 6	1.08c	4 18 0
Structural shapes	1.55c	7 2 6	1.00c	4 8 6	1.00c	4 8 6	1.00c	4 7 0
Plates, ship, bridge and tank	1.71c	7 17 6	1.30c	5 18 0	1.30c	5 18 0	1.32c	6 0 0
Sheets, black, 24 gage	2.39c	11 0 0	2.15c	9 15 0	2.15c	9 15 0	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	2.83c	13 0 0	3.30c	15 0 0	3.25c	14 15 0	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.32c	6 0 0	1.32c	6 0 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.57c	7 3 0
Galvanized wire, base	2.93c	13 10 0	1.95c	8 17 6	1.95c	8 17 6	2.01c	9 3 0
Wire nails, base	2.50c	11 10 0	1.60c	7 5 0	1.60c	7 5 0	1.67c	7 12 0
Tin plate, base box 108 pounds	$ 4.38	0 18 0	.....	.....	.....	....	$ 6.82	1 8 0

*Francs

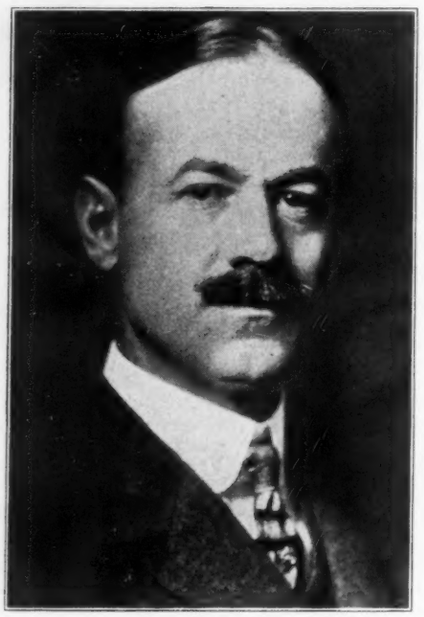
Domestic Prices at Works or Furnace—Last Reported			Francs			Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$15.83	3 5 0	$16.70	425(2)	$16.40	590	$18.59	78
Basic pig iron	.....	.....	18.08	460(1)	15.01	540	20.97	88
Furnace coke	2.92	0 12 0	6.09	155	5.14c	185	5.12	21.50
Billets	28.00	5 15 0	20.04	510	22.24	800	26.81	112.50
Standard rails	1.74c	8 0 0	1.36c	755	1.43c	1,100	1.51c	140
Merchant bars	1.63c	7 10 0	1.04c	580	1.14c	875	1.45c	134
Shapes	1.66c	7 12 6	1.00c	540	1.11c	855	1.41c	131
Plates, ship, bridge and tank	1.82c	8 7 6*	1.31c	725	1.42c	1,090	1.61c	149
Sheets .black, 24 gage	2.50c	11 10 0	2.43c	1,350	2.28c	1,750	2.38c	220
Sheets, galvanized 24 gage, corrugated	2.83c	13 0 0	3.36c	1,865	3.67c	2,825	3.78c	350
Plain wire	2.12c	9 15 0	1.55c	860	1.82c	1,400	2.11c	195
Bands and Strips	2.28c	10 10 0	1.31c	725	1.40c	1,075	1.66c	154

*Middlesbrough; †Scotch foundry iron; delivered; '(1) Basic-bessemer; (2) Longwy. British export furnace coke (£0 12s 0d $2.92) f. o. b. Ferromanganese £20 10s 0d ($99.84) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Industrial Men in the Day's News

Dwight P. Robinson, President of United Engineers & Constructors Inc.



FOR the past 35 years engaged in engineering and construction work, he becomes the executive head of one of the largest organizations operating in that field.

IDENTIFIED mostly with public utilities, his company achieved national prominence before merging into the present organization.

ONE of his contributions to industry was his development of Hog Island during the World war. His engineering commissions have given him an insight and experience in many industries.

ELECTION to head the United Engineers & Constructors Inc., as announced in IRON TRADE REVIEW Jan. 26, has brought to Dwight P. Robinson an honor and distinction that is a fitting recognition of his 35 years' experience in engineering and construction. During his participation in his profession he has rendered service to many nationally prominent organizations, and since 1918 has been engaged in bringing his company, Dwight P. Robinson & Co. Inc., New York, into leadership in its field of engineering.

As a result of the merger recently completed of the Robinson company, the United Gas Improvement Contracting Co., Philadelphia, the Public Service Production Co., Newark, N. J., and Day & Zimmerman Engineering & Construction Co., Philadelphia, Mr. Robinson becomes head of one of the largest existing engineering organizations in his presidency of United Engineers & Constructors Inc. The new company will have its headquarters in Philadelphia, with offices in principal cities of the United States and will operate in all parts of the world in any phase of engineering or construction activity.

Mr. Robinson was born in Boston, May 1, 1869. Following his preparatory education he attended Harvard university, Cambridge, Mass., from which he was graduated in 1890. He spent two years later at Massachusetts Institute of Technology, Cambridge, where he obtained his electrical engineering education. He spent a year at Massachusetts Institute as assistant in the mechanical engineering laboratory and in 1893 joined the organization of Stone & Webster Inc., Boston and New York. A few months later he was placed in charge of its Chicago office. From 1895 to 1903 he was engaged in operating light and power properties under Stone & Webster management.

In 1903 Mr. Robinson returned to Boston in charge of all engineering for that organization and when the Stone & Webster Engineering Corp. was formed he was made president in charge of engineering and construction activities. In 1912 he was admitted to partnership and from that year until 1918 had charge of many large hydroelectric developments. He retired as partner of Stone & Webster and as president of Stone & Webster Engineering Corp. July 1, 1918, and later in the year formed Dwight P. Robinson & Co. Inc. In the spring of 1917 he was elected president of the American International Shipbuilding Corp., subsidiary of the American International Co. In this capacity he was responsible for building and operating the government fabricating shipyard at Hog Island, Philadelphia. He resigned from that office in March, 1918.

In 1920 the Robinson company absorbed Westinghouse, Church, Kerr & Co., operating since 1884 as railroad and industrial builders. In addition to general industrial engineering and construction, public utility development, and commercial building, the Robinson company frequently has been commissioned by numerous governments for development and construction of their projects.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

WALTER B. LASHER, president of the American Chain Co., Bridgeport, Conn., has been elected chairman of the board of the Schick Repeating Razor Co., Sound Beach, Conn., manufacturer of a magazine safety razor.

* * *

E. R. Goldapp has been made general manager of the Portland Wire & Iron Works, Portland, Oreg.

J. Z. COLLIER

Made general superintendent, Aliquippa works of Jones & Laughlin Steel Corp., as announced last week

* * *

L. E. Thomas, president, Reading Iron Co., Reading, Pa., has sailed on an extended Mediterranean cruise.

* * *

A. B. Hilton Jr. has been elected a director of the National Recording Pump Co., Dayton, O., succeeding S. W. Burnham, resigned.

* * *

David Adams, formerly with the National Malleable & Steel Castings Co. at Sharon, Pa., has been made foundry superintendent of the W. A. Riddell Co., Bucyrus, O.

* * *

R. C. Kohn of the Art Metal Construction Co., Jamestown, N. Y., recently was elected president of the Traffic club of that city. O. M. Odell of the Dahlstrom Metallic Door Co. was chosen treasurer.

* * *

Oswald Dale has been elected vice president of the Wheeler Insulated Wire Co., New Haven, Conn. Until recently, Mr. Dale has been at the head of the radio sales department of the Acme Wire Co., New Haven.

* * *

Alfred P. Sloan Jr., president of the General Motors Corp., Detroit, and George M. Reynolds, chairman of the Continental Bank & Trust Co., Chicago, have been elected directors of Pullman Co. Inc.

* * *

William A. Rockenfield, formerly general manager of the Baldwin Chain & Mfg. Co., Worcester, Mass., is now vice president of the High Speed Hammer Co. Inc., Rochester, N. Y., and will devote his time to engineering and sales.

* * *

Lucian Eaton, Ishpeming, Mich., superintendent of the Ishpeming district for the Cleveland-Cliffs Iron Co., is on his way to Kharkov, southern Russia, representing Stuart, James & Cook, consulting engineers, New York.

* * *

H. B. Oettle has been appointed chief engineer of the Beaumont Mfg. Co., Philadelphia, maker of ash hoppers, gates for boiler houses, etc., succeeding L. O. Hassler who was transferred to its Chicago office, as noted in IRON TRADE REVIEW, issue of Jan. 12.

* * *

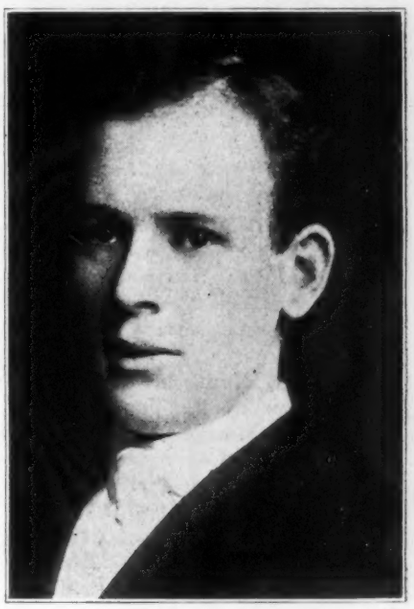
Roy Cosbey has been elected director and secretary of the Wadsworth Electric Mfg. Co. Inc., Covington, Ky., maker of switches and meter protective devices, succeeding Richard J. Dibowski, who died recently. Mr. Cosbey, for the past four years, had been comptroller of the Wadsworth company.

* * *

Henry H. Peck, who long has been identified with the steel industry, specializing in sales work in various parts of the country, has been appointed New York district sales manager for the Eagan-Johnson Steel & Iron Co., Crum Lynne, Pa., manufacturer of small and medium sized steel castings in carbon and alloys. He has established an office at 114 Liberty street, New York, and will operate in the metropolitan district.

* * *

John T. Seaver has organized the company of J. T. Seaver Inc., to act as sales agents for the sale of material handling and other heavy machinery. Mr. Seaver formerly was a partner in Ridenour, Seaver & Kendig, which operated in Cleveland and Pittsburgh. His offices will be in Cleveland.



S. S. MARSHALL JR.

Made assistant general superintendent of Aliquippa works, Jones & Laughlin Steel Corp., announced last week

* * *

A. M. McFarland has been made general sales and development engineer of the Lincoln Electric Co., Cleveland, manufacturer of motors and welders. Mr. McFarland had been engaged in a consulting practice and during the war was assigned by the navy department to supervise and expedite the construction of marine propelling machinery for fleet units.

* * *

S. W. Tarr has been appointed chief engineer of the mechanical engineering department of the Oliver Iron Mining Co., with headquarters at Duluth. He succeeds the late Spencer

S. Rumsey, who died in September. Mr. Tarr entered the employ of the Oliver company in 1903 as draftsman. He became assistant chief engineer of the department in April, 1922.

* * *

H. C. DuBois, vice president, E. J. Lavino & Co., Philadelphia, left New York for Europe, Jan. 18, for an indefinite vacation.

* * *

Ires Prosser has been made southeastern representative of the Botfield Refractories Co., Philadelphia, with headquarters at Atlanta, Ga.

* * *

H. W. Seymour has been elected a director of the Crane Co., Chicago, maker of valves.

L. B. Peeples has been elected a vice president.

* * *

M. W. Zeman, sales manager, machinery division, Osborn Mfg. Co., manufacturer of foundry equipment, Cleveland, sailed for Paris, France, Jan. 14.

* * *

Frank Miller, formerly advertising manager of the Perkins-Campbell Co., Cincinnati, has become advertising manager of the Newman Mfg. Co., of that city, manufacturer of brass, bronze and ornamental metal work.

* * *

Charles G. Munn, president of the Reynolds Spring Co., Jackson, Mich., also has been named president of the H. J. Grigoleit Co., a subsidiary, in both cases succeeding W. R. Reynolds.

* * *

Burton G. Tremaine Jr., president of the Superior Screw & Bolt Mfg. Co., and Newell C. Bolton, of the Bourne-Fuller Co., both of Cleveland, have been elected directors of the Cleveland Trust Co., Cleveland.

* * *

F. X. Devlin, formerly purchasing agent for Federal Motor Truck Co., has been made district sales manager in Chicago territory for H. C. Atkins Mfg. Co., St. Louis, manufacturer of pipe nipples.

* * *

Charles H. Leinert, president of the Leinert Valve Co. Inc., Chicago, has been appointed representative in the Chicago district for the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

* * *

W. L. Seelbach, secretary and treasuser, Forest City-Walworth Run Foundries Co.; H. M. Lucas, president of the Lucas Machine Tool Co.; Jacob D. Cox Jr., president of Cleveland Twist Drill Co.; E. H. Parkhurst, vice president, Columbia Axle Co.; G. E. Randles, president of Foote-Burt Co.; L. R. Scafe, general manager of the Fisher Body Ohio Co., and F. W. Smith, president of the Industrial Construction Co., have been elected to the board of governors of the Cleveland branch of the American Plan association.

* * *

Hugh S. Taylor, head of the department of chemistry, Princeton university, Princeton, N. J., has been awarded the Nichols medal for 1928 for his research in chemistry. It will be conferred upon Professor Taylor, March 9, at New York.

* * *

Joseph Curry has been made foundry superintendent of the Wescott Valve Co., East St. Louis, Ill., formerly operated by the Excelsior Tool & Machine Co. Mr. Curry had been foundry superintendent of Sweet & Doyle Foundry & Machine Co., Troy, N. Y.; Chandler & Taylor Co., Indianapolis, and Morse Chain Co., Ithaca, N. Y.

* * *

Elbert H. Dresser, president of the Polaris Concrete Products Co., Duluth, has been appointed chief engineer of the Duluth, Missabe & Northern railway, succeeding William H. Hoyt, who died last November. The railroad is a subsidiary of the United States Steel Corp., serving the mines on the Mesabi iron range. Mr. Dresser was with the railroad from 1905 until the period of his service during the World war.

* * *

Milton H. Pettit, for the past 18 months vice president of the Nash Motors Co., Kenosha, Wis., in charge of plants and production, has been appointed general manager. Formerly he was associated with the J. I. Case Threshing Machine Co., Racine, Wis., and later served as vice president and general manager of the Simmons Co., Kenosha, Wis., manufacturer of steel beds and furniture, resigning to join the Nash company in July, 1926.

* * *

Leonard F. Cowell, representative for the past 15 years in the Chicago and Northwest territory for the Lamson & Sessions Co., Cleveland, manufacturer of bolts and nuts, has been made Chicago district manager with headquarters in the Straus building.

William M. Olsen, representing Lamson & Sessions in the Detroit district for ten years, has been made district manager in that city, with his office at 4-228 General Motors building.

* * *

John H. Watson Jr., secretary of the Corrigan, McKinney Steel Co., Cleveland, has been elected president succeeding James W. Corrigan, whose death was announced in IRON TRADE REVIEW last week. Mr. Watson, who became secretary of the company three years ago following the election of Mr. Corrigan to the presidency, is a native of Vermont and a graduate of Dartmouth college, Hanover, N. H., and Harvard university law school, Cambridge, Mass. He is associated with M. B. & H. H. Johnson, Cleveland, attorneys.

J. E. Ferris has been elected secretary succeeding Mr. Watson. Other officers of the company are: Donald B. Gillies, vice president in charge of mining; Henry T. Harrison, vice president in charge of the steel plant and allied operations, and J. S. McKesson, vice president in charge of sales.

Plate Bookings Rise

Washington, Jan. 31.—Bookings of fabricated steel plate in December, totaling 35,648 tons, increased over November, figures of the department of commerce show. Following are monthly comparisons:

	Total	*Total	Oil storage tanks	Gas holders	Blast furnaces	Stacks and miscellaneous
1925		385,524	99,134	42,273	12,651	165,289
1926						
Dec.		29,858	9,476	1,858	1,791	12,627
Total (year)		513,913	175,367	47,524	14,406	196,849
1927						
Jan.		35,854	14,342	1,994	568	9,839
Feb.		59,643	32,983	3,334	606	16,647
March		55,407	24,127	5,135	857	17,900
April		47,347	18,019	9,450	420	15,069
May		37,883	10,855	2,524	364	20,865
June		28,811	7,402	2,263	1,026	15,192
July		35,326	17,199	1,034	537	14,274
Aug.		48,577	29,691	3,504	481	11,385
Sept.		38,662	15,421	2,254	873	14,576
Oct.		*47,090	*18,648	3,252	385	11,599
Nov.		*27,341	8,920	978	422	*10,794
Dec.		35,648	13,367	3,490	385	13,088
Total (year)		497,697	210,974	39,212	6,924	171,318

*Revised.

Foundry Equipment Gains

Cleveland, Jan. 31.—Foundry equipment orders in December increased somewhat, according to figures supplied by the Foundry Equipment Manufacturers' association. Following are monthly comparisons:

	1924	1925	1926	1927
Jan.	141.8	104.2	168.2	180.4
Feb.	121.0	108.8	154.9	198.0
Mar.	121.9	159.3	157.3	131.1
Apr.	146.8	124.3	113.2	130.0
May	108.4	113.3	128.5	134.8
June	96.4	110.5	133.5	138.4
July	62.8	117.0	127.3	89.9
Aug.	77.5	190.0	141.2	106.4
Sept.	66.0	94.2	114.0	80.4
Oct.	85.5	149.5	140.5	98.0
Nov.	91.0	180.3	133.4	95.8
Dec.	137.8	140.1	181.0	106.8

Base: Average monthly shipments for 1922-23-24.

Returns to St. Louis

St. Louis, Jan. 31.—St. Louis Gas & Coke Corp., Granite City, Ill., will return its headquarters to St. Louis

from Chicago before May 1, according to M. D. Curran, recently elected president. An administration building is being completed at the plant, but the sales offices will be retained in Bell Telephone building here.

Offices were moved from St. Louis to Chicago when the former St. Louis Coke & Iron Corp., predecessor to the present company, was placed in friendly receivership for reorganization purposes. Formerly owned by St. Louisans, the corporation has passed into the hands of Chicago financial interests. It is a subsidiary of the Utilities Power & Light Co., headed by Harley Clark.

Malleable Castings Up

Washington, Jan. 31.—Production of malleable castings in December totaled 47,876 tons, an increase over November. Other comparisons follow:

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
1926				
December ..	50,017	48.2	40,051	103,831
Total	715,384	54.7	607,949	1,307,889
1927				
January ..	*51,492	48.8	50,994	105,619
February ..	*57,380	54.8	58,039	104,686
March	66,372	62.2	53,597	106,698
April	59,225	55.8	56,326	106,163
May	57,655	54.1	49,482	106,473
June	58,972	55.3	46,178	106,736
July	48,202	43.9	45,782	104,287
August	51,394	48.6	42,515	105,717
September..	45,210	43.3	37,912	104,401
October	46,765	46*	39,494	101,606
November....	40,845	40.5	34,624	100,778
December....	47,876	47.6	49,215	100,685
Total (year)	631,388	50.4	564,158	1,253,849

**Capacity since May, 1926 has been based on following formula: "Total number of units of molding floor space, times average production per molder per day per unit of floor space, times number of actual working days per month."

Institute Schedules Iron and Steel Sessions

Iron and steel will be much to the fore at the annual meeting of the American Institute of Mining and Metallurgical Engineers at the Engineering Societies building, New York, Feb. 20-23. Several papers on ferrous metallurgy have been scheduled for the opening session on Monday morning, Feb. 20, while in the afternoon the chief topic for consideration will be the commercial aspects of steel manufacture. Later in the afternoon, H. D. Hibbard will present the annual Howe memorial lecture, the subject being, "The Significance of the Simple Steel Analysis."

The Tuesday afternoon session will be devoted to the open hearth and the Wednesday morning session to the blast furnace. At a joint round table conference on Wednesday afternoon members of the iron and steel committee of the American Institute of Mining and Metallurgical Engineers and the American Foundrymen's association will consider the topic, "Blast Furnace Operations and the Character of Pig Iron and Castings."

At the annual dinner at the Waldorf hotel on Tuesday evening the Hunt gold medal will be awarded to Dr. John A. Mathews; the Hunt prize will go to Dr. C. H. Herty Jr., and the J. E. Johnson Jr. award will be conferred upon P. H. Royster. Secretary of Commerce Herbert Hoover will be given the Saunders Mining gold medal.

Canadian Iron and Steel Output Rising

Toronto, Ont., Jan. 31.—Production of pig iron in Canada in December was 63,197 long tons, compared with 37,989 tons in November and 53,971 tons last December. The 1927 production of pig iron was 709,697 tons, a decline of 7 per cent from the 757,317 tons of 1926.

Production of steel ingots and direct steel castings in December rose to 96,248 tons from 80,730 tons in November and 58,493 tons last December. For 1927 production totaled 907,638 tons, an increase of 17 per cent over the 776,888 tons of 1926. The year's figures include 867,928 tons of steel ingots and 39,710 tons of castings.

Corp. Plans Laboratory

New York, Jan. 31.—Construction of a central laboratory in New York to house the new research department, of which Dr. John Johnston was appointed head last summer, will be started shortly by the United States Steel Corp. Technical research will be conducted in the new laboratory but the more practical side of the work will continue to be taken care of at various plants. Headquarters of Dr. Johnston will continue at 71 Broadway.

November shipments of domestic pumps and water systems totaled 7079 water systems, 37,512 pumps and 10,405 cylinders shipped separately from the manufacturers' plants in the United States.

Obituaries

BERTHOLD HOCHSCHILD, a founder of the American Metal Co. Ltd., New York, a director of the Miami Copper Co., and the Granby Consolidated Mining, Smelting & Power Co., died at his home in New York, Jan. 24. Mr. Hochschild had been prominent in the metal industry for 40 years, coming to the United States from Germany, where he was born in 1860. He founded the American Metal Co. with Jacob Langeloth in 1887 and was the company's first treasurer. Later he became president and then chairman. He retired from that position three years ago, retaining only a directorship.

* * *

E. M. Drummond, president of the Drummond Mfg. Co., Louisville, Ky., maker of carriage axles, etc., died Jan. 22.

* * *

W. S. Haggas, well known mechanical engineer, and a founder of the Haggas-Keighley Oil Engine Co., Toronto, Ont., died at his home in that city Jan. 25. He had been connected with several British engineering companies and in 1922 was made chief Canadian representative of the Keighley Gas & Oil Engine Co. of England.

* * *

William Weitz, 65, president of the Weitz Bros. Machine Works, Evansville, Ind., and until recently president of the Heilman Machine Works, died at his home there recently.

* * *

Arthur Fletcher Whitin, president and treasurer of Whitinsville Spinning Ring Co., Whitin Bros. Inc., and the Saunders Cotton Mills, Whitinsville, Mass., died at his home in that city Jan. 23. He had been active in state politics at one time.

* * *

William M. MacEwen, 58, vice president and secretary of the Philadelphia & Reading Coal & Iron Co., Philadelphia, died Jan. 21, at his home in Haverford, Pa., after an illness of several weeks. Mr. MacEwen was born in Philadelphia and in 1892 entered the service of the Reading company in a clerical capacity.

British and German Exports Low

(*Concluded from Page* 363)

improved, but makers are not pressing sales in view of the organization of the semifinished steel and structural steel comptoir, which is expected to be formed in the near future. In Belgium export business is fairly active, owing to the temporary disappearance of French competition, and in Germany the domestic demand has resumed satisfactory proportions, with the result that German makers are not pressing for sales on export markets. The Societe des Hauts Fourneaux de Pont-a-Mousson is reported to have obtained an order for cast iron pipe for Guatemala in connection with the plan for water supply, the contract for which was passed to the White Corp. The Acieries et Usines a Tubes de la Sarre has obtained an order for about 12,000 tons of tubes for Bulgaria, and the Forges et Acieries du Nord et de l'Est have obtained a contract from Sofia for tramway material. Merchant bars on the continent are about £4 17s ($23.40) per ton, f.o.b. Antwerp. The wire rod association has maintained its minimum price of £5 10s ($26.60) per ton. Exports of Polish steel products in November were about 14.5 per cent less than in the previous month and amounted to 13,649 tons, including 1000 tons of pig iron. During the first eleven months of 1927 Polish steelworks exported 18,000 metric tons of pig iron, chiefly ferromanganese, 61,629 tons of merchant bars and structural steel, 48,431 tons of plates and sheets and 35,421 tons of pipe.

German Imports and Exports Decline

Berlin, Jan. 20.—(*European Staff Service*)—Germany's exports of iron and steel products for November showed a decrease of 16,249 metric tons from October. Exports in November were 336,485 metric tons against 352,734 tons in October, 357,924 tons in September, 514,961 tons in January and 472,656 tons in November, 1926. Among the principal items exported in November were 76,199 tons of bars and bands, 34,229 tons of rolled and drawn wire, 32,942 tons of rails and track fastenings, 29,414 tons of plates and sheets, 24,140 tons of blooms, billets and sheet bars, and 14,221 tons of pig iron.

German imports in November amounted to 296,013 metric tons, compared with 298,557 tons in October, 268,523 tons in September, 188,217 tons in January and 142,702 tons in November, 1926. Among the principal items imported in November were 100,252 tons of bars and bands, 68,607 tons of scrap, 36,294 tons of blooms, billets and sheet bars, and 30,979 tons of pig iron.

Large Belgian Works Negotiate Merger

Brussels, Jan. 20.—(*European Staff Service*)—It is reported from Luxemburg that negotiations now are being held between the Acieries Reunies de Burbach-Eich-Dudelange, the large Luxemburg concern known as the Arbed, which over a year ago amalgamated with the Usines de Terres-Rouges, and the Societe Belge Metallurgique de'Esperance-Longdoz with a view to close co-operation between the two concerns, and even perhaps a complete merger. Societe Metallurgique de'Esperance-Longdoz is one of the leading Belgian iron and steel concerns and specializes in heavy castings, especially rolls, and in the manufacture of plates and sheets. This will be a further step in the rationalization of large concerns which has gradually been developing in Belgium and Luxemburg during the two years just completed.

Stockholders of Companhia Siderurgica Belgo-Mineira, which concern is partly under the control of the Arbed and which operates iron and steel plants in Brazil, recently held their annual general meeting. The report for 1926 states that the financial result was unsatisfactory. One furnace produced 4672 tons of pig iron, but in view of poor sales 4500 tons were in stock in September, 1926, and the plant was closed down. In the meantime a second furnace is being constructed. One open-hearth steel furnace produced 1467 tons, and the construction of a second furnace has been started. Additions have been made to the rolling mill plant. The report states that the situation at the beginning of 1927 showed signs of improvement. The blast furnace plant was restarted in July, 1927, and already it is noticed that production costs have been reduced.

Belgian Exports Down, Imports Higher

Brussels, Jan. 20.—(*European Staff Service*)—Exports of pig iron from Belgium and Luxemburg during October were the smallest to date. Imports of pig iron, on the other hand, reached the second highest figure on record. The following table gives figures for the first ten months of 1927 as compared with the monthly averages of the two preceding years, in metric tons:

Mon.	IMPORTS		EXPORTS	
ave.	Pig iron	Steel	Pig iron	Steel
1925.....	27,095	15,860	8,060	242,325
1926.....	27,505	27,265	13,105	304,075
1927				
Jan.	30,253	23,086	17,742	332,921
Feb.	21,876	20,793	8,191	367,723
Mar.	26,172	33,192	10,713	440,445
Apr.	27,351	26,579	15,363	372,296
May	27,843	24,229	10,766	371,211
June	34,966	28,961	10,474	359,563
July	35,334	22,696	13,118	373,255
Aug.	42,913	27,824	11,368	436,631
Sept.	28,388	27,726	13,665	355,720
Oct.	41,404	31,881	6,964	379,047

Belgium Profits by French Quiet

BRUSSELS, Jan. 20.—(*European Staff Service*)—Following the holidays, it is as yet too soon to obtain a definite impression of the tendency of the Belgian iron and steel market. Export orders have not yet resumed normal volume, and it takes a little time for the market to readjust itself after the quiet period through which it has just passed. One fact was specially commented upon on the Brussels iron and steel exchange, that is, the complete absence of French offers. The reason for this attitude is believed to be the formation of the comptoir for semifinished and structural steel, which is on the point of being definitely settled. French works prefer to take orders for the domestic market, and some wish to enter the comptoir with practically empty order books. Lack of French competition on the Belgian market

Franc—2.78c

has had a favorable influence on prices, and it is believed that French offers would have caused prices to decline. This is the more satisfactory from the point of view of Belgian steelmakers, as many Belgian mills need new orders to carry on, especially in structural steel, sheet bars and merchant bars. Apparently most mills are covered only until the middle of February.

The price of coal for January remains the same as at the end of 1927, but domestic coal has dropped 10 francs (27.00c) per ton. British competition has caused pig iron prices to drop. Basic bessemer pig iron is quoted at £2 18s ($14.10). Merchant bars are sold at between £4 16s 6d and £4 17s ($23.45 and $23.55). Concrete reinforcing bars have been sold at £5 1s and £5 2s ($24.50 and $24.75). Beams of standard size are worth £4 7s ($21.25) and inquiries have been received from South Africa. Semifinished steel has been quiet because the volume of inquiry from Great Britain has been small. Sheet bars are quoted at £4 8s ($21.35), blooms from £3 18s to £4 1s ($19 to $19.50), billets from £4 5s to £4 7s ($20.60 to $21.15). Skelp is sold at £5 3s ($25). Business in wire products is dull and prices are comparatively low. Wire nails are quoted at £7 5s ($35.25), galvanized wire at £11 17s 6d to £12 ($58 to $58.60). Trade in plates and sheets has been small. Plates ¼-inch have dropped to £5 10s ($26.75); ⅛-inch sheets are £6 4s ($30.10). Wire rod in the domestic market is quoted at 950 francs ($26.50) delivered.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

MIDLAND BARGE CO., Midland, Pa., recently was awarded a contract for the construction of four sand and gravel barges of deck type with cargo boxes, for E. T. Slider, New Albany, Ind., each 7½ x 30 x 120 feet. This interest also will build a hull for the American Dredging Co. for use on the Mississippi river, 13½ x 70 x 150 feet, equipped with a 230-foot boom. It is also building a barge for the Dillman Egg Case Co., Carruthersville, Miss., of flush deck type, 7 x 36 x 180 feet, and a quarter boat for the Acme Construction Co., Pointe-Ala-Hache, La. It now is completing the last of a fleet of 35 barges for the Upper Mississippi River Barge Line. Engines for a steamboat for E. T. Slider, tandem compound non-condensing type, 7 x 14 x 28 feet, will be built by the Marietta Mfg. Co.

* * *

UNIVERSAL TRAFFIC CONTROL CO. has removed its offices and factory from Oklahoma City, Okla., to St. Louis. Its offices will be in the Title Guaranty building.

* * *

ACME PATTERN WORKS, Beloit, Wis., has recently moved into its new plant and is specializing in wood and metal patterns, models and engineering work.

* * *

OLIVER H. VANHORN CO., New Orleans, has been appointed distributor in Louisiana and Texas for the Wilson Welder & Metals Co., Hoboken, N. Y.

* * *

CARBONDALE MACHINE CO., Carbondale, Pa., manufacturer of industrial refrigeration equipment, has moved its Pacific coast offices to 1031 South Broadway, Los Angeles, in the Western Pacific building.

* * *

AKRON FOUNDRY CO., Akron, N. Y., has been organized to take over the business operated for many years by Theodore Thayer and his son, Asa T. Thayer. Principal stockholders are Asa T. Thayer, Henry L. Avery and Grover Meahl.

* * *

BALLTITE JOINT CORP., Hudson, N. Y., recently formed, will manufacture a special joint invented by its president, H. Tiel Rockfeller, 7 South Seventh street, Hudson, N. Y. Earle C. Scutt, 524 Warren street, Hudson, is secretary.

* * *

SCHWEBKE MACHINE WORKS, Beloit, Wis., is a new firm recently starting the manufacture of experimental and general machinery, tools and dies. E. M. Schwebke is president and treasurer and C. J. Schwebke general manager.

* * *

HAYS MIRKIL has taken over the business formerly conducted by the estate of Thomas H. Mirkil Jr. at 1011 Chestnut street, Philadelphia, having purchased it from the estate of his father. The company manufactures a lifting clamp and other specialties.

* * *

BELOIT MFG. CO., Beloit, Wis., has started in business recently, manufacturing automatic water systems. It has perfected a double-action, single-stroke pump cylinder. H. L. McCarthy is president, R. A. Stoller vice president, F. A. Collinge, secretary and E. G. Peet treasurer.

* * *

JOSEPH H. DONBERG & CO., Chicago, has been organized by Joseph H. Donberg, with temporary offices at 1426 South Harding avenue, Chicago. It will deal in new and used machine tools and equipment. Mr. Donberg formerly was associated with Louis E. Emerman & Co., machinery dealers, Chicago.

* * *

WILSON WELDER & METALS CO., Hoboken, N. J., advises that in a recent list of appointments of distributors of its welding machines the representation at Boston should be Austin Hastings Co. Inc., instead of Joseph T. Ryerson & Son Inc. Its welding wire distributor at Jacksonville, Fla., should be J. G. Christopher Co. instead of J. G. Christopher.

* * *

GALVANIZING & PLATING CO. of Texas, 3205 Engelke, at the intersection of Navigation boulevard, Houston, Tex., started operations in its plant on Jan. 16. The plant, which is in Houston's new ship channel industrial section, employs the old-fashioned hot dip process of galvanizing. The officers are C. A. Mattiza, president and treasurer; R. M. Carney, vice president; and Robert L. Sonfield, secretary.

* * *

WESTINGHOUSE ELECTRIC & MFG. CO., Pittsburgh, Pa., has taken two large orders for carbon circuit breakers. One is an order for 50 circuit breakers with capacities of 1200 to 10,000 amperes, for the American Rolling Mill Co. The other is for 75 hand-operated plain automatic circuit breakers for the Narragansett Electric Light Co. Capacities of these units are 1200 to 2000 amperes.

* * *

J. G. BRAUN CO. has been formed at Chicago to take over and continue the manufacture of ornamental iron work, architectural metal work and other iron, steel and metal products which was originally founded in 1887 by J. G. Braun and has been operated recently by Hubert J. Braun, son of the founder. It is located at 615 South Paulina street, Chicago. The company is capitalized at $1,000,000.

* * *

GUTTERSON & GOULD INC., Lawrence, Mass., dealer in scrap iron and metals, has obtained a charter as a corporation after being in business as a partnership for 37 years. The change brings into the company two young men who have been with the firm several years and now become officers. Myron E. Gutterson is president and general manager, Edward S. Gould treasurer, Francis Zecchini vice president and manager Lawrence yard, Joseph Soutar, assistant to president and manager Portland yard, William Odlin clerk.

* * *

COMPANIA ELECTRO SIDERURGICA e INDUSTRIAL DE VALDIVIA, launched a couple of years ago to build an iron and steel plant in Chile, has been incorporated under the laws of Chile. Financial arrangements for carrying out the company's plans now are under way. Incidentally, the Chilean government will guarantee bonds to be issued by the new company. The Engineers Corp., 43 Exchange place, New York, subsidiary of the J. G. White Engineering Corp., has a contract whereby it has charge of the design and construction of the proposed plant in Chile. It is considered unlikely that

actual construction work will be started until about July, 1928.

* * *

SCHLUETER BOILER WORKS, Janesville, Wis., manufacturer of boilers and sheet metal work, has moved into its new plant.

* * *

UNDERWOOD TYPEWRITER CO. and the Elliott Fisher Co. have merged, according to announcement of officials. The name of the new company will be Underwood, Elliott Fisher Co.

* * *

CLINTON METALLIC PAINT CO., Clinton, N. Y., has bought the mining plant and ore rights owned by the late C. A. Borst, at Clinton. It also has taken over some hematite ore deposits near the village, owned by the Franklin Iron Mfg. Co.

* * *

CUMBERLAND STEEL CO., Cumberland, Md., has elected W. Wallace McKaig president, Z. M. Hewitt vice president, J. M. Rhind secretary and Guy J. Spear treasurer. Directors include these officers and W. T. Coulehan, Samuel E. Griminger and George Henderson.

* * *

OLSON MFG. CO., Albert Lea, Minn., has bought the entire holdings of the Freeport Equipment Mfg. Co., Freeport, Ill. The latter company manufactured a line of barn equipment. The plant will be dismantled and material shipped to the plant of the buyer.

* * *

PARKESBURG IRON CO., Parkesburg, Pa., has elected Paul D. Johnson a director to succeed the late H. A. Beale. Officers elected by the directors are as follows: President, E. H. Brodhead; first vice president and treasurer, George Thomas III; second vice president and secretary, H. A. Beale III.

* * *

HH. WARD CO., recently organized at Chester, Pa., has taken over the business formerly conducted by H. H. Ward, in the manufacture of hardware and sheet metal goods. An addition of 75,000 square feet is being built at one of the plants. H. H. Ward is president, H. H. Ward Jr., first vice president, A. B. Ward second vice president, S. B. Ward third vice president, T. F. Dunion secretary, and J. F. Cullin treasurer.

Bethlehem Economies No Boost To Profits

Important economies in production effected by the Bethlehem Steel Corp. during the past four years have reduced production costs materially, but this has not been reflected in profits because of severely declining prices. This fact is pointed out by President E. G. Grace in the company's annual report of earnings. The net income after all charges for 1927 was $15,826,142 against $20,246,167, a decline of nearly 20 per cent. In his report to stockholders President Grace said:

"Gross sales and earnings for 1927 aggregated $271,502,891 compared with $304,361,805 for 1926. The total amount of new business booked during the year amounted to $280,199,101 as compared with $283,707,678 for 1926.

"The value of orders on hand Dec. 31, 1927, was $58,609,006 as compared with $52,321,794 at the end of the previous quarter, and $49,912,796 on December 31, 1926.

"Operations averaged 69.5 per cent of capacity during the fourth quarter as against 69.3 per cent during the third quarter, and 73.6 per cent for the entire year, as compared with 81.1 per cent for the previous year. The rated steel capacity of the Corporation has been increased, effective Jan. 1, 1928, from 7,600,000 tons to 7,900,000 tons per annum. Current operations are at the rate of approximately 80 per cent of capacity.

"The balance sheet of the Corporation as of Dec. 31, 1927, will show current assets over current liabilities of $122,262,967 as compared with $128,596,660 the previous year, and a ratio of current assets to current liabilities of 5.0 to 1. Cash and liquid securities as of December 31, 1927, amounted to $47,796,249 as compared with $50,971,276 on December 31, 1926. The comparative income accounts for 1927 and 1926 follow:

	1927	1926
Total income	40,378,899	45,405,253
Less-Interest charges, premiums, etc.	11,456,261	12,532,421
Balance	28,922,638	32,872,832
Deduct-Provision for depletion, depreciation, etc.	13,096,496	12,626,665
Net Income	15,826,142	20,246,167
Preferred	6,790,000	6,778,855
Surplus	9,036,142	13,467,312

"The cash expenditures for additions and improvements to properties in 1927 amounted to $30,530,306. The estimated cost to complete construction authorized and in progress as of Dec. 31, 1927, was $13,850,000.

"Upon the completion of construction now in progress the Corporation will have expanded for additions and improvements to properties since Jan. 1, 1923, over $150,000,000 in cash.

"The construction program together with a better co-ordination of the various properties acquired from the Lackawanna, Cambria and Midvale companies have been largely responsible for a reduction of $7.27 per ton in the average cost of producing the finished steel products shipped by the corporation in 1927 as compared with the corresponding average (based upon equivalent tonnages of the same products) in 1928.

"Unfortunately the economies in production have not resulted in a corresponding increase in the net income of the corporation because, during the same period, the prices of steel products have steadily declined, the average billing price per ton of all rolled steel and other finished products shipped by the corporation during 1927, having been $8.60 less than the corresponding average for 1923.

Metal Door Standards to be Submitted

Washington, Jan. 31.—Standards for hollow metal and kalamein doors have been agreed upon at a meeting called by the division of simplified practice, department of commerce.

The joint conference agreed upon four stock door sizes for the kalamein single acting doors and trim and five semistock single doors and five semistock sizes for resultant pairs.

For the recommendation regarding hollow metal single acting swing doors and frames there were promulgated nine sizes for single doors and the same for resultant pairs.

Interested groups will be circularized to obtain the necessary 80 per cent acceptance to make the standards effective.

Committee to Seek New Economic Currents

Washington, Jan. 31.—A special committee will be appointed by Secretary Hoover to study shifts and trends of business. Facts will be sought in regard to changes in standards of living, foreign trade and credit, shifts in employment and distribution and similar economic conditions. Private funds will finance the investigation.

Name Ancillary Receivers

New York, Jan. 31.—Edward C. Bauers and Charles L. Feldman have been appointed ancillary receivers in equity, under $5000 bond, of the Wickwire Spencer Steel Corp. The receivership action originated last October in the western district of New York and ancillary proceedings were previously initiated in the federal courts of Massachusetts, Illinois and California. Liabilities of the company are stated to be $22,000,000 and assets have a book value of $29,000,000.

Asks Lump Sum Extras

Pittsburgh, Jan. 31.—Quantity differentials on hoops and bands have been placed on a lump sum basis as of Jan. 30 by the Jones & Laughlin Steel Corp. On quantities less than 1000 pounds the extra is $10, on 1000 to 1999 pounds $6, and on 2000 to 3999 pounds $3.

Machinery

Eastern Linotype Manufacturer Still Is Heaviest Buyer—Electrical Manufacturers More Active—Railroad Lists Expected Soon

ALTHOUGH January proved to be a good month for machine tools and shop equipment, sales were not quite as heavy during the last few days of the month as they were some two weeks ago. Buying still is well scattered and with exceptions is not for large quantities of machinery. Mergenthaler Linotype Co. continues to be the heaviest purchaser in the East, it being estimated that this interest has ordered close to 200 machines this month. Considerable miscellaneous equipment still is to be placed, it is understood. General Electric is buying more actively and Westinghouse Electric & Mfg. Co. is about to commence buying against its first quarter list. Several railroad lists are expected to appear soon.

New York, Jan. 31.—Heavy buying by the Mergenthaler Linotype Co., Brooklyn, again features business in the local machine tool market. It appears that close to 200 machine tools, including many miscellaneous types have now been placed and that still additional contracts will be awarded. This company has also purchased a large number of motor drives, contracts being distributed among several sellers. Demand otherwise is moderate.

Excluding the Mergenthaler businness, it appears that the general buying has shown some improvement, but not a sharp improvement. Among companies now active are the New York Central, which within the past ten days or so, has brought out inquiries for at least a dozen machines, including several shapers, drills and lathes, and New York, New Haven & Hartford railroad, which is inquiring for a few machines, including a burnishing lathe, special grinder and some fabricating equipment. General Electric Co. continues to bring out scattered inquiries, this interest being more active than in perhaps several weeks.

Worcester, Mass, Jan. 31.—Sales and inquiries in the machine tool market show an increase. Single tool sales have been fairly numerous and cover a wide range. Makers of machinery are more firm in their ideas as to price, although competition remains keen. Specifications figured some months ago have been reopened. Used tools are also moving better. The last week in January places the month favorably with the same period last year. Bench tools are active; grinding machinery is moving steadily as are wheels and the steel industry is inquirying for more equipment. February is expected to be an active month with several railroad and machine shop equipment lists due.

Pittsburgh, Jan. 31.—Equipment sellers are divided in their opinion of January as a selling month. One says it was the best January in four years, made up of numerous single machine tool installations which various salesmen managed to close up after working upon them for some time. Another says that January was the worst month in two years. The Pittsburgh board of education has closed on equipment for the Herron Hill high school, dividing among several dealers the order which involved seven or eight lathes, two upright drilling machines, a grinder as well as saws, joiners, and other woodworking equipment. It is stated that Westinghouse Electric & Mfg. Co. will start this week or next to place orders against its first quarter list. No other industrial lists now are pending, but inquiries for single items are improving, particularly for special equipment. Koppers Construction Co. awarded a contract for a grab bucket coal bridge to the Mead-Morrison Mfg. Co., and a coal and coke-handling plant installation has been awarded Heyl & Patterson Inc. The hoist market continues acitve.

Chicago, Jan. 31.—Inquiry for machine tools is active in this market but sales, largely industrial and to agricultural implement works, are in scattered single-order business. Santa Fe is inquiring for a 8 x 14-foot toolroom engine lathe, a 54-inch vertical boring mill, a 16 x 36-foot lathe, a flanging clamp for plate shop work, and a number of welding machines. This is said by some to be the forerunner of an important list from hte Santa Fe. It is probable that Chicago & North Western and the Burlington will come out soon with lists. Railroad activity is slow to take form. Tool and die shops in the Chicago district have been unusually active in the machinery market, these buyers taking several power presses, a 16-inch 8-foot lathe, and several other tools during the week. Special tools and welding machines likewise have been active. An Evanston, Ill., industrialist took a milling machine, and milling machines also were sold to Racine, Wis., and Kankakee, Ill., users. A Milwaukee road machinery manufacturer closed on a used lathe and will continue buying on its list of new and used tools. In general the volume of sales is holding up to the activity since the first week of the month, and the outlook is considered good.

Cleveland, Jan. 31.—For practically all machinery interests in this territory January closes as one of the best sales months for some time past. No large orders were taken but the general activity of industry was such as to provide a steady stream of small orders. So far the automotive industry has failed to account for any great proportion of the going business, but it is expected that these interests will come into the market shortly after having determined through recent shows the prospects for car sales in 1928. Inquiries continue fair. Used equipment is moving well.

CRANE ORDERS PLACED

Five 1-ton push cranes with 900 feet of monorail track for installation in glass warehouse of L. Solomon & Son, Jersey City, N. J.; placed, contract reported going to Richard Wilcox.

Two cranes, including one 20-ton electric and one 5-ton handpower, for Lockwood, Greene & Co., New York, for installation at Elizabeth City, Tenn., to Box Crane & Hoist Corp.

Among single orders were: 40-ton electric crane for Dwight P. Robinson & Co. Inc., New York, for installation in plant of Gulf States Steel Co., Alabama City, Ala., to Niles Crane Corp.; 5-ton electric hoist for Charles Mundt & Sons, Jersey City, N. J. to Box Crane & Hoist Corp.; 1000-pound hoist for Artistic Dyeing Co., Brooklyn, N. Y., to Box Crane & Hoist Corp.; 1-ton electric hoist for James Spence Foundry Co., Jersey City, N. J., to Box Crane & Hoist Corp.; 1000-pound electric hoist for Paramount Finishing Co., Brooklyn, N. Y., to Box Crane & Hoist Corp.; pile driver for Southern Railway, to McMyler-Interstate Co.; 5-ton crane for Allegheny Steel Co., Brackenridge, Pa., to Shaw Crane-Putnam Machine Co.; large coal-handling grab bucket bridge for Koppers Construction Co., New Haven, Conn., to Mead-Morrison Mfg. Co., one coal and coke handling installation for low-temperature carbonization plant near New Brunswick, N. J., for International Coal Carbonization Co., subsidiary of International Combustion Engineering Corp., New York, to Heyl & Patterson Inc.

CRANE ORDERS PENDING

40-ton handpower crane equipped with two 20-ton trolleys, for New England Public Service Co., Augusta, Me.; pending.

150-ton crane for Phoenix Utility Co., New York; action expected shortly.

Eliminates Flue Dust

Birmingham, Ala., Jan. 31.—Sloss-Sheffield Steel & Iron Co. will blow out its No. 1 City furnace Feb. 1 and in the next few months will rebuild the lines of its No. 2 City furnace, as a measure toward eliminating flue dust.

Acquire Toronto Plant

Toronto, Jan. 31.—Negotiations for taking over the Baldwin steel plant in the Ashbridge Bay industrial district of Toronto have been concluded by Gordon F. Ferry, president of the National Iron Corp., Toronto. The machinery, except that of the machine shop, is being dismantled.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

NEW HAVEN, CONN.—Hamden Tool & Metal Works expects to have its new 1-story plant in operation soon. The company will specialize in the manufacture of steel and brass shells.

STAMFORD, CONN.—George Muench, 575 Pacific street, maker of special machinery, has awarded the contract for a 1-story plant addition, 50 x 100 feet to Genovese & Rich, 1 Bank street.

CAMBRIDGE, MASS.—H. H. White, 25 University road, is inquiring for miscellaneous tools and equipment for a proposed 2-story repair and service garage.

FAIRHAVEN, MASS.—D. N. Kelly & Son, Kelly's wharf, plan to build a 3-story addition 40 x 100 feet, to their shop.

WATERTOWN, MASS.—Watertown Builders Supply Co., 418 Arsenal street, will build a 3-story plant.

NEWARK, N. J.—Plans for a 2-story machine shop, 68 x 100 feet, are being made for V. and R. Tedeschi, 25 Mercer street.

NEWARK, N. J.—Paramount Mfg. Co. has been incorporated with $50,000 capital to manufacture and deal in electrical devices by Saul Nemser, Jersey City, attorney.

NEWARK, N. J.—Federal Steel Erecting Co. has been incorporated with 10,000 shares no par value stock by Stein, McGlynn & Hanroch, Newark, attorneys.

ROSELLE PARK, N. J.—Joseph J. Tomasulo & Co. has been incorporated with $100,000 capital to manufacture and deal in electrical machinery by Eugene A. Liotta, Elizabeth, attorney.

VINELAND, N. J.—Vineland N-S-E Corp. has been incorporated with $50,000 capital to manufacture fuel saving devices by Herbert C. Bartlett, attorney.

WOODBINE, N. J.—Woodbine Machine works has been purchased by William L. Lipman who will engage in general machine shop business under the name of Lipman Machine Works.

BROOKLYN, N. Y.—Harry Albanese Inc., 63 Whipple street, maker of plumbing equipment and supplies, plans to build a 2-story plant, 25 x 100 feet.

BROOKLYN, N. Y.—Cornell Laboratories has been incorporated with $30,000 capital to manufacture and deal in surgical instruments by J. Goldberg, 221 East 168th street, Manhattan, attorney.

BUFFALO—W. W. Wetmore Corp., recently formed by W. W. Wetmore, 364 Vorhees avenue, will manufacture heating equipment.

NEW YORK—M. Fine, 790 Riverside drive, plans to build a 2-story garage and service station, 100 x 200 feet.

NEW YORK—American Zinc, Lead & Smelting Co., 331 Madison avenue, plans extensions and improvements to its plant at East St. Louis, Ill.

NEW YORK—Warner Elevator Mfg. Co. has been incorporated with 50 shares no par value stock by A. M. Davis, 1 East Forty-fourth street, attorney.

NEW YORK—Knitbac Machine Corp. has been incorporated with $100,000 preferred shares and 200 shares no par value stock to engage

Resale Equipment News

REAL estate, buildings, patents, dies, jigs, machinery, equipment and finished and unfinished products of the Perfection Electric Products Co., New Washington, O., manufacturer of domestic electrical appliances, will be sold at auction by the receiver Feb. 16.

The material includes drill presses, hack saw, shaper, surface grinder, tool grinders, milling machine, engine lathe, bench lathe, shaper and slotter, arbor press, air compressors, punch presses, tapping machine, winding machines, turret lathes, planer, disk grinder, blowers, polishing lathe, electric equipment, vises, tempering furnaces, electric drills, nickel plating tanks, plating generators, and miscellaneous equipment. Finished material includes electric heaters, cooking utensils, toasters, dishwashers, curling irons and similar articles.

* * *

Reconditioned, new and used machine tools, the property of Henry Prentiss & Co. Inc., Jersey City, N. J., will be sold at absolute auction Feb. 16 by Samuel T. Freeman & Co., auctioneers.

Sales Calendar

Feb. 16—Auction sale of real estate, buildings, machinery and equipment of Perfection Electric Products Co., New Washington, O.

Feb. 16—Auction sale reconditioned machine tools by Henry Prentiss & Co. Inc., Jersey City, N. J.

Feb. 16—Bids of miscellaneous surplus material at Fort Ontario, N. Y.

Tools in the sale include cylindrical grinders, disk, tool and surface grinders, shapers, inclinable and straight side presses, planers, automatic screw machines and turret lathes, horizontal and vertical boring mills, screw-cutting and quick change lathes, gang drill presses, radial drill presses, broaching machines, bolt cutters, key seaters, blowers, furnaces, band and swing saws, planers, electric motors and small tools.

Quartermaster at Fort Ontario, N. Y., will receive bids until Feb. 16 on an assortment of used materials, including nonferrous metals, iron and steel, mostly in manufactured form.

* * *

Equipment and machinery of the Buffalo Switchboard Co. and the Tucker Rubber Corp., Buffalo, is being sold in bankruptcy, comprising a large assortment of iron and woodworking machinery, motors and motor generator sets.

* * *

New Haven Screw Co., New Haven, Conn., which is going out of business, is liquidating all its machinery, small tools and factory equipment. This includes automatic screw machines, lathes, oil separators, hand screw machines, drills and tool and cutter grinders.

* * *

Fort Wayne Rolling Mill Corp., Fort Wayne, Ind., has asked the federal court for a receiver to liquidate its affairs and the First National bank of that city has been appointed in that capacity. The mill is continued in operation and orders on hand will be executed under direction of the receiver.

in machine shop work by Spiro & Felstiner, 347 Fifth avenue, attorneys.

NEW YORK—Hammer & Hollinger have been incorporated with $5000 capital to manufacture and deal in machinery by R. L. Levinson, 2 Lafayette street, attorney.

NEW YORK—Ochrome Valve Co. has been incorporated with $325,000 preferred shares and 3000 shares no par value stock by E. R. Kayes, 25 West Forty-third street, attorney.

NEW YORK—Union railway, 2396 Third avenue, has awarded the contract for a 1-story shop and extension work to Andrew J. Robinson Co., 15 West Thirty-eighth street.

NEW YORK—O'Brien Electric Co. Inc., 505 West 125th street, maker of electrical equipment, will remodel for a plant the 4-story building it acquired recently.

NEW YORK—Grand Central Iron Works has been incorporated with $30,000 capital by S. B. and B. Pollak, 570 Seventh avenue, attorney.

NEW YORK—United Grate & Force Draft Corp. has been incorporated with $2500 capital to manufacture and deal in furnaces by L. B. Ginsberg, 16 Court street, Brooklyn, attorney.

NEW YORK—Airco Engine Co. has been incorporated with $251,000 capital to manufacture and deal in automobile engines by Plante & Abrahams, 15 William street, attorneys.

NEW YORK—Vapor Heating Systems Co. has been incorporated with $5000 preferred shares and 50 shares no par value stock to manufacture and deal in heating equipment, by D. J. Marks, attorney.

NEW YORK—Atlantic Fire Protection Co. has been incorporated with $5000 preferred shares and 612 shares no par value stock to manufacture and deal in fire extinguishers by D. J. Marks, 1545 Broadway, attorney.

NEW YORK—Central Metering Corp. has been incorporated with 100 shares no par value stock to manufacture and deal in machinery by P. E. Jackson, 68 William street, attorney.

NEW YORK—Shear Rite Rug Co. has been incorporated with $25,000 preferred shares and 100 shares no par value stock to manufacture rug repair machinery, by M. V. Malcolm, 475 Fifth avenue, attorney.

NEW YORK—Property has been purchased on Eleventh avenue, at Twenty-sixth street, for 12-story terminal warehouses. According to plans by Westcott & Mapes, industrial architects and engineers, and Alexander Douglas Stark, consulting structural engineer, the proposed terminal will have a total floor area of 1,500,000 square feet. R. Wilbur Tietjen will be the owner of the property and, according to present indications, will lease considerable of the ground floor areas to the Lehigh Valley railroad.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works
First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK
Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Per Net Ton Chester, Pa. and Baltimore base	
Dead-burned grain magnesite	40.00

CHROME BRICK

Per Net Ton Chester, Pa., and Baltimore base	
9 x 4½ x 2½	45.00

NEW YORK—Lancia Motors of America Inc., 50 East Forty-second street, has acquired a plant at Poughkeepsie, to be used for an assembling plant for Lancia automobiles manufactured in Italy.

OSWEGO, N. Y.—Otis-Sawyer Co., maker of small heating boilers, suffered damage to its plant in a recent fire.

BRADFORD, PA.—Bradford Motor Works has been incorporated with $150,000 capital to conduct a general machine shop business by Edward L. Adams, Bradford.

BRIDGEPORT, PA.—Bridgeport Iron Works will operate a steel fabricating plant and general iron works.

BRIDGEPORT, PA.—Bridgeport Iron Works has been incorporated with $51,000 capital by A. I. Pollock, South and Eden streets, Pottstown, Pa.

BUTLER, PA.—Kesselman & Co., has been incorporated with $5000 capital to manufacture, repair and deal in all kinds of machinery, tools, etc., by Floyd V. Kesselman, 114 Polk street.

PHILADELPHIA—Contract has been awarded to L. Cherry, 2465 North Patton street, for a plant addition for Nedman & Rubin, 315-19 North Seventh street.

PHILADELPHIA—Work will be started shortly by the John B. Stetson Co., Fifth and Montgomery streets, on a plant and office addition.

PHILADELPHIA—Keystone Aluminum Die Casting Co. has been incorporated with $50,000 capital to manufacture and deal in die castings and other metal products by Frank Brown, 6370 Church road.

PHILADELPHIA—G. A. Drieling Co. has been incorporated with $25,000 capital to manufacture and deal in sheet metal, iron and steel products, by George A. Drieling, 804 Somerset street.

PITTSBURGH—Automatic Gas Steam Radiator Co., G. Blackmore, Brushton and Trenton avenues, manager, has awarded the general contract for a 1-story plant 100 x 200 feet.

PITTSBURGH—Rex Metal Mfg. Co. has been incorporated with $5000 capital to manufacture steel, brass and other metal articles by Maurice Levaur, 6514 Bartlett street, Pittsburgh.

PITTSBURGH—Gianakos, Blanck Co. has been incorporated with $25,000 capital to manufacture and deal in sheet metal work, hotel equipment and supplies, etc., by George D. Gianakos, Monterey and North avenue.

PITTSBURGH—Lally-McKelvy Inc. has been incorporated with $10,000 capital to manufacture and deal in supplies for contractors, miners and other industries by Harry E. Sheldon, 1100 Beechwood boulevard.

PITTSBURGH—Schatzman & Weller Inc. has been incorporated with $25,000 capital to manufacture and deal in fireproof office equipment by Charles A. Schatzman, 3655 Greentree avenue, Pittsburgh.

YORK, PA.—Vevaco Products Inc. has been incorporated with $10,000 capital to manufacture iron and steel products, by John E. Ericson, Spring Garden township, York.

East Central

BELLEVILLE, ILL.—Belleville Enameling & Stamping Co. plans to rebuild its plant recently damaged by a fire.

CHICAGO—Naylor Spiral Pipe Co., 9145 South Chauncey avenue, maker of spiral pipe, has awarded the general contract for a plant and warehouse to be built at 9147 South Chauncey avenue.

CHICAGO—C. C. Cross Corp., 2413 West Seventy-ninth street, has been incorporated with $10,000 capital to manufacture and deal in electrical supplies, specialties, machinery, etc., with John J. Sherlock, 1105 Fisher building, correspondent.

CHICAGO—Transformer Corp of America, 127 North Dearborn street, has been incorporated with $2000 capital to manufacture and deal in choke coils for radios, power units and transformers with George Gannon, correspondent.

CHICAGO—Beckwith Iron Works, 544 West Seventy-ninth street, plans to build an addition 40 x 180 feet.

JOLIET, ILL.—Richard Zeley Foundry Co., 178 Collins street, has been incorporated with $20,000 capital to do a general foundry and machine shop business with Barr & Barr, Morris building, Joliet, correspondents.

MARION, ILL.—Egyptian Equipment Co., 1201 Public Square, has been incorporated with $2000 capital to manufacture and deal in motor vehicles, motor buses, etc., with Pam & Hurd, 231 South LaSalle street, Chicago, correspondents.

MATTOON, ILL.—Mattoon Engine Works, 120 North Fourteenth street, has been incorporated with 1000 shares no par value stock, succeeding Chuse Engine & Mfg. Co., and will manufacture and deal in pumps, machinery, tools, etc., with Vause & Kiger, Mattoon, correspondents.

MICHIGAN CITY, IND.—Stefco Steel Co., Roeske avenue, contemplates reorganization and future expansion of its works.

ANN ARBOR, MICH.—City plans to build a municipal airport, including hangars, repair shops, etc.

DETROIT—Detroit Stoker Co., General Mo-

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45 to 55 per cent iron and 6 to 8 per cent manganese	10.00 to 10.50
North African low phosphorus	nominal
Swedish foundry or basic, 65 per cent	9.00 to 9.50
Spanish and North African basic, 50 to 60 per cent	8.50 to 9.00
Newfoundland foundry, 55 per cent	9.00 to 9.50

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$14.50 to 14.75
Washed gravel, imported duty paid eastern tidewater, per net ton	15.50 to 16.00

tors building, plans to build a 2-story addition at Monroe, Mich.

FLINT, MICH.—Buick Motor Co. is completing a building which will house its engineering and experimental departments, freeing space in the factory for production purposes.

GRAND RAPIDS, MICH.—Superior Foundry Corp., has been organized and will erect a gray iron foundry on property recently purchased on Watson street, southwest.

AKRON, O.—Policelarm Mfg. Co. has been incorporated with 250 shares no par value stock by Alice B. Kraus, Russell W. Thomas and L. M. Buckingham.

CLEVELAND—Sanymetal Products Co., Urbana road, has awarded the general contract for a 1-story plant addition, 75 x 220 feet, to the Austin Co.

FOSTORIA, O.—Fostoria Pressed Steel Co. has awarded the contract for its plant addition to H. E. Gage Construction Co., Tiffin, as well as the contract for rebuilding its enameling plant damaged in a recent explosion and fire. (Noted Jan. 19.)

SANDUSKY, O.—Klotz Machine Co. suffered damage to its plant by a fire Jan. 26.

SPRINGFIELD, O.—Central Brass & Fixture Co., Jefferson and Zeigler streets, A. O. Dennis, vice president and general manager, is inquiring for equipment including two 24-inch lathes, cutting machine, drill press and slotter.

DURAND, WIS.—A plant for the manufacture of vault doors and filing safes may be constructed by W. J. Kendrick of Minneapolis, who has been looking for a suitable site here.

EAU CLAIRE, WIS.—Northwestern Motor Co., Starr avenue, has awarded the general contract to Walker & Olson, 716 Churchill street, local, for a 1-story factory addition, 50 x 66 feet.

GREEN BAY, WIS.—Fire on Jan. 20 caused damage in the plant of the Northern Corrugating Co., Pearl and Bridge streets. Repairs will be started as soon as insurance adjustments are completed.

HARTFORD, WIS.—William Radtke, city clerk, is taking bids until Feb. 7 for the following work in reference to the municipal light and power plant: Furnishing one direct-connected fan and steam engine; one direct-connected steam driven 25 kilowatt exciter; rewinding two electric generator units.

MADISON, WIS.—Wisconsin Power & Light Co., general offices, Madison, has received a conditional preliminary permit to construct and operate a 20,000 horse power hydroelectric generating plant on the Wolf river, near Shawano, Wis., from the federal power commission, Washington. Five sites are under inspection.

MANITOWOC, WIS.—Manitowoc Board of Industrial Education is about to select an architect to draw plans for the proposed new shop unit of the vocational institute. A. L. Nimtz is director.

MENASHA, WIS.—Star Pointer Pump Mfg. Co. has changed its name to Twin Cities Plumbing Supply Co., and henceforth will concentrate on the manufacture and distribution of supplies and materials for the plumbing and steam heating trade.

MILWAUKEE—Vorclone Co., 56 South Bay street, manufacturer of laundry machinery, has started work on an additional story on its main factory and for remodeling its office building.

MILWAUKEE—American Metal Products Co., Thirty-fourth and Burnham streets, is building a foundry addition 80 x 160 feet, doubling its capacity. In addition, it is purchasing two electric furnaces and installing a 5-ton crane and a modern core oven. A building 80 x 120 feet is being built also to house its rolling mill. C. J. Zaiser is president of the company. (Noted Jan. 19.)

MILWAUKEE—Maj. H. C. Hengels, state military architect, 445 Milwaukee street, Milwaukee, expects to have plans ready for bids Feb. 18 for the water works system to be established at Camp Williams, Camp Douglas, Wis., by the War Department. It will require two 200-gallon electric motor driven pumps, a 50,000-gallon steel storage tank and about 8000 lineal feet of mains.

MILWAUKEE—Terminal Warehouse Co., E. D. Fryer, president, 274 South Water street, will be ready for bids about March 1 for the construction of a storage warehouse and docks on the Milwaukee river at West Water and Buffalo streets. The overall dimensions are 147 x 323 feet, five stories, with 420 feet of docks. Railroad tracks will enter the building.

MILWAUKEE—F. Hartung Co., which is opening an additional stone quarry unit at Sawn road, near Lisbon avenue, town of Wauwatosa, has placed the contract for one crusher unit with the Allis-Chalmers Mfg. Co., Milwaukee, and one Farrell crusher with the Earle C. Bacon Co., New York. Bids are being taken on several electric motors of various sizes.

OSHKOSH, WIS.—J. A. Barnes Machine Co. has sold its machine shop and warehouse at 123 Marion street to the Oshkosh Auto Parts Co. and plans to build a new shop in the north end of this city.

RACINE, WIS.—Allover Mfg. Co., Twelfth street and Irving place, manufacturing manual and electric hair clippers, suffered a loss by fire on Jan. 16. Heaviest damage was to the stock of clipper blades, although some machinery will be replaced.

STOUGHTON, WIS.—The common council has engaged the Power Engineering Co., Minneapolis, to make a survey and recommend equipment for changes and improvements to modernize the municipal light plant.

SUPERIOR, WIS.—Barnett & Record Co., Minneapolis, is successful bidder for the construction of 239 concrete grain storage tanks at the Superior terminal elevator of the Great Northern Railway.

WAUWATOSA, WIS.—Bids close Feb. 3 with A. V. Brigham, secretary of the board of public works, for furnishing a 1,000,000-gallon elevated steel tank as part of the equipment of a new municipal water supply at Greenfield and Hawthorne avenues. Bids are being taken on a 60-foot and a 65-foot tank, with 14 or 16 legs.

West Central

MARSHALLTOWN, IOWA—Fisher Governor Co., 201 First avenue, has awarded the contract for a 2-story plant, 70 x 125 feet. (Noted Dec. 8).

KANSAS CITY, MO.—Victor L. Phillips Co., 1600 Baltimore avenue, manufacturer of road machinery, has increased its capital stock from $100,000 to $150,000 and probably will make some plant extensions and other improvements.

KANSAS CITY, KANS.—Gould Casting Corp., Quincaro boulevard and Gould road, contemplates building a plant addition.

KANSAS CITY, MO.—Graham Metal Mfg.

Co. has been incorporated to manufacture metal caps, etc., by George E. Muehlebach, 1035 West Meyer boulevard.

KANSAS CITY, MO.—D. M. S. Motor Repair Co., 2615 Warwick boulevard, has been incorporated with $100,000 capital by Frank J. Dearinger, N. E. McCormick and E. D. Stewart.

ST. LOUIS—General Weatherstrip has been incorporated by Alfred M. Lane, 4738 Lafayette street.

ST. LOUIS—Century Electric Co., E. S. Pillsbury, 1806 Pine street, president, plans to build a 1-story foundry building.

ST. LOUIS—Shampaine Aseptic Furniture Co. has leased space at 1222 Chouteay avenue to the manufacture of metal beds and hospital equipment.

ST. LOUIS—E. M. Wiegmann & Co. Inc. has been incorporated with $11,500 capital to do sheet metal work, by Edgar M. Wiegmann, 3611 North Eleventh street.

ST. LOUIS—Hemp & Co., 1945 South Vandeventer avenue, has awarded the general contract for a 2-story plant for the manufacture of heating equipment, to Widmer Engineering Co., Laclede Gas Light building.

ST. LOUIS—J. A. Semmelmeyer Belting Co., 6630 Waterman avenue, maker of mechanical belting, contemplates building a 1-story plant addition, 100 x 120 feet, and also to install additional equipment.

Gottfried Co., 3100 Nineteenth street, manufacturer of machinery, plans to build a new plant.

SANTA MONICA, CALIF.—Goodrum & Vincent have awarded the contract for a 2-story garage and service building 150 x 150 feet, to be built on Fifth street.

PORTLAND, OREG.—Oregon Brass Works, Linnton road, has awarded the contract for the second unit 80 x 70 feet, of its new plant to Wegman & Son, Board of Trade building. It is expected that a third unit will be built this year.

SEATTLE—Washington Iron Works, founder, machinist and boiler maker, is building an addition, 48 x 150 feet, to be used for a forge shop.

Southern States

MIAMI, FLA.—Tuttle Service Corp. has been incorporated with $10,000 capital to manufacture and deal in automobile accesories, by R. D. Kaufman, Seybold building.

ROME, GA.—Rome Electric Range Co., 100 West Second avenue, has been organized to manufacture electric ranges and has leased a building for manufacturing purposes.

LEXINGTON, KY.—Wombwell Automotive Parts Co., J. H. Wombwell, president, plans to build additions to its plant.

CROSS PLAINS, TEX.—Cree & Co. contemplate building a machine and blacksmith shop at Coleman, providing a suitable location is found.

HOUSTON, TEX.—Burkhead Mfg. Co., 1970 Harrington street, has acquired the Davis George Mfg. Co. plant at 1610 Henderson street, manufacturer of tubs, caps, stove pipe, etc.

HOUSTON, TEX.—Chevrolet Motor Co., Detroit, will build a 2-story assembly plant on a new site 100 x 250 feet, recently acquired by Jesse H. Jones, Groggan building.

HOUSTON, TEX.—Fort Houston Foundry Co., a partnership of W. F. Reichardt and William Hardcastle, has leased a building 50 x 150 feet at 1418 Carr street for manufacture of gray iron castings.

Western States

SAN FRANCISCO—Dealers Refrigerator Co., 446 Sixth street, maker of refrigerators and freezer counters, plans to build a new plant at Third street and Paul avenue.

SAN FRANCISCO—Link Belt, Meese &

Canada

BEAVERTON, ONT.—The machine shop and machinery of Smith Bros. was damaged by fire Jan. 24.

BRIDGEBURG, ONT.—Horton Steel Co. plans an addition to its plant to provide for the expansion in its business. It will be 93 x 105 feet of reinforced concrete and steel.

FERGUS, ONT.—Beatty Bros. Ltd., W. Beatty, general manager, is inquiring for machinery and equipment for the manufacture of electric washers and various specialties, for the proposed new addition to its plant.

NEWMARKET, ONT.—Pencil Co. of Canada Ltd. has been incorporated to manufacture pens, pencils, machinery, etc., with $25,000 capital and 500 shares no par value stock by Norman Somerville, Frederick A. A. Campbell, and Wilfred L. Hilt.

New Trade Publications

HOISTS—Union Mfg. Co., New Britain, Conn., has issued an illustrated bulletin on its roller bearing hoist, with description of its details and operation.

STEEL POSTS—Sweet's Steel Co., Williamsport, Pa., has issued a bulletin on its steel fence posts. Varied uses for other purposes than fence are illustrated. Method of erection is shown graphically.

INTERIOR PAINT—U. S. Gutta Percha Paint Co., Providence, R. I., in a current booklet presents its case for use of its paint for industrial interiors as an economy. Coverage and labor to apply are compared.

COKE OVEN BURNERS—Current bulletins by the Semet-Solvay Engineering Corp., New York, present its method of reversing gas flame in the flues of by product coke ovens and its method of heat control in flues by simple means.

LIFTING MAGNETS—Electric Controller & Mfg. Co., Cleveland, has issued a bulletin on its lifting magnet designed to handle hot ingots as soon as they are stripped from the mold. Other uses are also illustrated. Construction is shown in diagrams.

PNEUMATIC TOOLS—Sullivan Machinery Co., Chicago, has supplemented its regular bulletins by a booklet devoted to varied uses of compressed air to perform labor. It is illustrated to show many applications of air by the use of its appliances. The company's equipment is also illustrated.

TIME RECORDERS—Esterline-Angus Co., Indianapolis, in a recent bulletin, presents a recording instrument for recording the time and duration of events. Its use in industrial plants for various purposes is illustrated. Details of its construction and operation are shown in illustration and text.

SOOT BLOWERS—National Flue Cleaner Co., Groveville, N. J., has issued a bulletin on its soot blowers for use with horizontal return tubular and Scotch marine boilers. A separate nozzle, in a fixed position, for each tube, is a feature of this blower. Steam or compressed air are used in cleaning. It is illustrated.

PYROMETERS — Brown Instrument Co., Philadelphia, in a boklet under the title, "How the Other Fellow Does It," calls attention to use of its pyrometers in heat treating processes, the variety of products heat treated and types of furnaces in which they can be used. Illustrations make it clear how they are applied.

WASTE HEAT BOILERS—Combustion Engineering Corp., New York, in a current issue of "The Safety Valve," its house organ, includes a paper on waste heat boilers, through its subsidiary, the Heine Boiler Co. Conservation of heat by this means as a plant economy is discussed. Diagrams show how installations may be planned.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. These preferentials increased by one extra 5 per cent in meeting competition.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENDS		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 5 on black and 1½ and 5 on galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of one 10 to two 10's and one 5 now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 7.65 pounds per square foot	10.2
Plates less than ¼-inch gage, to and including 7.65 pounds per square foot	.20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 7.65 pounds per square foot, to but not including 7.65 pounds per square foot	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B.	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection	No extra

Charles for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra	.10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)

Additional extra	.20c